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An index to the 107th volume of THE RAILWAY GAZETTE *covering the issues from July 5 to December 27, 1957, has been prepared, and is now available free of charge on application to the publisher.*

London Transport Dilemma

TO find the £1,000,000 a year needed to cover the payment to London busmen of the additional 8s. 6d. a week awarded by the Industrial Court has set the London Transport Executive a hard problem; that is to suppose that the Executive will not go further than it has offered to do, which is to apply the award as it stands, and no more. The Minister of Transport & Civil Aviation, Mr. Harold Watkinson, has stated that the £1,000,000 is not to be found by raising fares. Under the Transport Act of 1947, the British Transport Commission must provide "an efficient, adequate, economical and properly integrated system" of public transport, and its revenue must suffice "for making provision for the meeting of charges properly chargeable to revenue, taking one year with another." The Act states that all the business carried on by the Commission shall form one undertaking; but it is contrary to the spirit of the Act and to the wishes of the present Government, that losses on London Transport should be borne by the other nationalised transport undertakings. The London Transport Executive, therefore, must continue to provide efficient and adequate transport and at the same time find £1,000,000 a year by reducing costs or increasing revenue, or both. For various reasons, a small deficit already is apparent on this year's working, and no increase in revenue can be expected. L.T.E. railway and road services are economically managed. A little can be achieved by measures such as shutting some Underground station entrances. It may be asked how services can be reduced without ceasing to be "adequate." There are many watchful critics who will lose no time in pointing out deficiencies. Restriction of services moreover may cause even more travel by private car, which in turn would aggravate street congestion and increase the expense of bus operation. A proposed cut in bus schedules already has resulted in a threat by some busmen to ban overtime. Fear of unemployment, or, more immediate, of loss of extra earnings from rest-day working may reduce trade union opposition to economy measures. Even so it is hard to see how these could hardly add up to £1,000,000 a year. Ministerial intervention in the affairs of nationalised transport should be kept to the minimum; but as Mr. Watkinson has begun by intervening with his ban on increasing fares, he ought to suggest a solution in the present case.

Reviving Old Railway Names

AN interesting commentary on what has been taken to be the policy of the British Transport Commission in suppressing the names of the old railway companies and adhering to the regional descriptions is to be found in an advertisement which appeared in the *Doncaster Chronicle* of February 27. This bears all the hall-marks of an official announcement by the Eastern Region and part of the text, which is accompanied by a sketch map of the old Great Northern Line, states: "the Eastern Region has been split up and the Great Northern Line is virtually an independent organisation within the Region." Another line in the advertisement states that "the Great Northern Line will continue to keep you informed over the next few months of the many services and facilities provided," and the ending is: "Forward, Great Northern." If the Great Northern is to have autonomy, it is reasonable to suppose that similar powers will be accorded the old Great Central, the Lancashire & Yorkshire, the Highland and the Taff Vale. There is a lot to be said for the value attaching to names under which railways became well-known over long periods, but it is difficult to reconcile going back two stages to revivify the Great Northern while refusing to permit the use of the pre-nationalisation names, such as the London Midland & Scottish, or even more so, the Great Western Railway, the name of which was unchanged right up to the time of the creation of the British Transport Commission.

Railway Research

IT is sometimes suggested that part of the railways' scientific effort that is devoted to actual research is largely unnecessary. In his paper on "Railway Research" to the London School of Economics last week, Mr. T. M. Herbert, Director of Research, British Railways, explains that there is some truth in this belief, but only up to a point. A railway, he points out, is so much concerned with the subsequent performance, reliability, and maintenance of its physical equipment that much of its research and study can only be carried out by itself on the equipment and material during its life. He stresses that the fact that British Railways possess a diversified scientific staff of their own is one of the best ways of ensuring that the results of scientific development in other industries and other fields are not ignored. Besides describing the present research organisation and facilities, Mr. Herbert states that plans are in hand to provide a new chemical laboratory in the London area, a new engineering laboratory at Derby, and a test track some four miles long at Wichnor Junction.

English Electric Co. Ltd.

THE fact that railway equipment manufactured by the English Electric Co. Ltd. was in operation in 56 countries during 1957, speaks well for the quality of that firm's products. Some 40 per cent of the company's current production goes overseas, much of this in the form of repeat orders. These facts were revealed by Sir George H. Nelson, Chairman of the English Electric Co. Ltd., at the annual general meeting in London last week. An extract from his statement appears elsewhere in this issue. The company has already contributed a great deal to the modernisation of British Railways, and since 1933, when, in conjunction with the railways, it developed a then new type of diesel-electric shunting locomotive which has since become standard on British Railways, it has been foremost in the development of diesel-electric traction in this country. In 1948 English Electric produced, again jointly with British Railways, the first two main-line diesel-electric locomotives to operate in public service in this country. Further evidence of its achievements lies in the fact that the value of orders placed in 1957 from all over the world for electric and diesel-electric traction equipment was an all-time record.

Vulcan Foundry Products

THE maintenance of high standards of design and workmanship at the Vulcan Foundry at Newton-le-Willows and the vigour and enterprise shown by the Vulcan Foundry Limited in securing orders are shown in the statement made by the Chairman, Sir George H. Nelson, in respect of the year 1957; an extract from this is given on another page. An outstanding Vulcan product of last year was the first main-line diesel-electric locomotive to be delivered under the British Railways modernisation scheme. Deliveries overseas included mechanical parts for electric locomotives for South Africa and for India, and the mechanical parts for diesel-electric locomotives for the Rhodesia Railways, on orders from the English Electric Co. Ltd. The mechanical parts of the further " 5E " type electric locomotives being built by the English Electric Group for the South African Railways also are to be made, and the locomotives erected, at Newton-le-Willows—one of several encouraging indications of continued future activity. In the field of steam, substantial orders for spares were received from Argentina.

B.T.C. Hotels & Catering Services

ELSEWHERE in this issue we describe and illustrate the re-designed dining room and lounge recently re-opened at the Caledonian Hotel, Edinburgh. We also give brief details of the extensive improvements completed and being carried out or planned by the British Transport Hotels & Catering Services at hotels and premises in Scotland. There is no more effective medium of making or breaking good relations than the catering establishment. This doctrine is axiomatic with the Swiss —a nation which owes its prosperity largely to the tourist trade. Both countries abound with natural scenic beauty; both offer world-famous sporting facilities; the non-tourist industries of both, though thriving, yet are barely sufficient to support each national economy. To both countries the new monied classes represent an additional source of income: published tourist figures show that Swiss attractions backed by Swiss hospitality take full advantage of this extra spending power. Of less measurable financial value is the truism that civilisation is reflected in the standard of a people's catering establishments. The improvements being carried out by the B.T.C. Hotels & Catering Services represent an essential factor in the maintenance and improvement of British prestige abroad.

" Piggy-Back " Transport in the U.S.A.

THE growth of the practice on the U.S.A. railways of carrying loaded road trailers on flat wagons (" piggy-back " transport) is shown by the numbers of flats loaded in 1955 (168,150), 1956 (207,780), and 1957 (249,065). A correspondent points out that many of the trailers would be carrying " smalls " which the railways used formerly to carry as " less-than-carload " (L.C.L.) traffic. This source of revenue is declining: the wagons loaded totalled 5,457,000 in 1948, 3,229,690 in 1955, 3,055,495 in 1956, and 2,750,300 (about half the 1948 figure) in 1957. The trailers may also be carrying some traffic which forwarding agents otherwise would have put on rail direct. In 1956, these agents despatched over 5,000,000 tons of smalls in 483,400 railway wagons—long-haul traffic which yielded a gross revenue of $434 a wagon.

Little Profit Likely

BETWEEN 50 and 60 Class 1 American railways take a share in what the Pennsylvania Railroad calls " tructrain " (or " piggy-back ") business. That company announced that gross revenue from this traffic was running at the rate of $15,000,000 a year in 1956, a relatively good year; but net revenue results are an unknown quantity. Many special wagons were built for the traffic when prices were at a peak and long flat wagons were in demand for ordinary goods, such as harvesters and other machines. The working expenses of the " tructrain " services must be high and the revenue ton-miles represented by it in 1957 would be a very small proportion of the aggregate of 615,000 million. The number of wagons loaded with trailers was only 0·6 per cent of the total forwardings. On balance, the U.S.A. railways may be making little profit out of the venture.

Mechanised Trench-Digging

AS labour costs continue to rise, railway engineers seek ways of displacing manual labour where practicable. From time to time machines are specially developed for particular applications. A good deal has been done in this direction of late by British Railways in conjunction with British manufacturers. The major electrification schemes, for example, have occasioned the development of specially equipped trains, for such operations as auger boring and concreting for lineside posts, and overhead cable erection, which have been described in this journal from time to time. A machine coming within this category is a rail-mounted trench-digging machine described on another page. It has been developed by the Western Region, as first mentioned in our issue of September 16, 1955. The prototype, since final development, has excavated some 16,000 cu. yd. of drain trench. It shows a saving of some 85 per cent of labour costs, a considerable economy in the light of Sunday working, when double time is paid.

Press-Button Teleprinter Working

THE installation of press-button working at the newly-completed British Road Services London teleprinter centre marks yet another advance in the speed-up of communications between B.R.S. depots throughout the country. It became apparent in 1949 that it would not be practicable to satisfy the eventual telecommunication requirements by the public telephone service alone, and, although the B.R.S. organisation was then still in its infancy, it was clear that the need for exchanging information on a nation-wide basis about vehicle movements, rates matters, urgent proof of delivery, load discrepancy reports, and so on, would demand an efficient and economical private telecommunications system. The teleprinter message is an ideal medium for communicating factual messages of this kind. In view of the substantial economies brought about by using teleprinters it is surprising that the London Midland is the only Region of British Railways to have installed a teleprinter network for commercial purposes. With the latest type of equipment now used, a 60-word message can be transmitted from Glasgow to Southampton in 150 sec., at considerably less cost than a telephone trunk call. In the future, punched paper message tape will give way to fully automatic electronic storage, and switching through a magnetic drum, resulting in further savings and providing still speedier operation.

Financing Nationalised Industry

DURING last week's second reading debate on the Nationalised Loans Bill, the Financial Secretary to the Treasury, Mr. J. E. S. Simon, revealed that a general review of the financing of the nationalised industries was in course; and that any decisions reached could be announced in the Budget statement and incorporated in the Finance Bill. The Bill accordingly extends only to August the powers given in the Finance Act, 1956, which but for the Bill would expire on March 31, for direct Treasury advances through the Minister concerned to those industries. Previously the public corporations borrowed within the limits of their borrowing powers from the banks, and by loans issued under Treasury guarantee. This announcement raised hopes among Government back-benchers that their demand was about to be conceded, that the nationalised industries should be required to obtain capital on the market in the same conditions as other borrowers. The Opposition was concerned lest the Minister's statement meant this should be the case.

It is hard to believe that the Chancellor of the Exchequer, Mr. Heathcoat Amory, would apply such procedure to all the boards. It is true that the Herbert Committee on the Electricity Supply Industry recommended that the Area Electricity Boards should be required to raise capital by this method because, it contended, the market provided better evidence of the economic justifiability of the capital expenditure concerned. It was argued that ability to raise money on the market in the normal way provided a test of the profitability and thereby the efficiency of the industry. That may be the case with private enterprise, although on occasion it could be argued that it is not the merits of an issue, but the state of the money and investment markets, which determine the extent to which new capital can be raised and at what price. Such a criterion cannot be applied effectively to all public enterprises alike, because their operations are not always solely governed by commercial considerations. For instance, all of the public corporations have obligations of a public service nature placed upon them by their establishing statutes, and they are not entirely free to fix their own prices in relation to costs. Both limit the efficacy of profitability as the test of their efficiency as applied by the market. Theoretically, all but the British Transport Commission may be free to fix their own prices, but in practice there is close consultation with the responsible Minister before any price changes are made. In fact, Ministers have been known to go further than the statutes require in making their wishes known. In 1952 and 1956 there was direct interference by the Government in regard to increased charges proposed by British Railways and London Transport. Only last week the Minister of Transport & Civil Aviation, Mr. Harold Watkinson, on the same day as the Industrial Court made its award on the claim of the London busmen, indicated without qualification that the cost of meeting the award must not come from higher fares.

Whether or not the contention that the public service obligations of the nationalised industries and the control exercised over their charges destroys in all cases the effectiveness of the market test when fresh capital is sought, this method could not in any case be applied to the British Transport Commission. If it were compelled to borrow on the market in competitive conditions, and without Treasury guarantee, it would confront serious difficulty. With a deficit of £50 million in 1956 and one of over £54 million in 1957, and with traffics declining at a frightening rate, its credit would probably be found by the market to be pretty poor. The cost of raising capital there, even if possible, would consequently be substantially higher than when the protection of Government credit is given. The capital requirements of the Commission are large and must be met if its modernisation programme, on which its prosperity depends, is to be fulfilled. That it would balance its accounts by 1961-62 was based on several assumptions, including the one that the necessary resources would be available to carry through the programme as planned. Already its phasing has been upset by Government restriction on capital expenditure to a level which retards the programme. Any further difficulties and delays, such as would arise were the Commission required to finance the plan without Government financial assistance, would place the Commission in an impossible position and further weaken its financial position. Already it is improbable that its estimates can be approached, and the £250 million available under the Transport (Railway Finances) Act in Treasury loans to finance its deficits until 1962 will probably be exhausted before then. If traffics continue to decline as steeply as they have in recent months the losses of the last two years may well be exceeded and the accumulated deficits, with deferred interest, may reach twice that figure. In these circumstances, the market would consider the Commission a very poor credit risk. Whatever, therefore, the Chancellor may decide as to the method whereby nationalised industries shall in future be financed, the British Transport Commission cannot be forced on to the market to fend for itself.

It is not only the market that must be considered. Mr. Watkinson has rightly given a sharp warning to all concerned on British Railways that unless railway receipts, and notably freight earnings, show a marked improvement in the near future, it will be hard for him to justify, to the Government, investment of further money in modernising plant and equipment.

Boldness in Railway Commercial Policy

BOLD action is needed now to put an end to the decline in British Railways freight traffic to avoid the untoward consequences of the railways adding to their deficit. The urgent need for, and ways of, improving the service given have been discussed in recent issues. The question of charges, looked at from the railway user's point of view, was the subject of a stimulating speech last week by Mr. J. W. Bannard, Chairman of Council of the Mansion House Association on Transport and Assistant to the Transport Adviser to the Board of Unilever Limited. He was speaking at the annual luncheon of the Association; a brief account of this function is given on another page. The most important of the points made by him was that the railways should show boldness even to the point of "dropping a brick or two here and there" in making use of the freedom in quoting rates accorded them by the merchandise charges scheme operative from last July; they should not be timid, conservative, or unimaginative in quoting; and they must state where they could convey traffic well and cheaply, both now, and in the future, after modernisation had provided more and better facilities for dealing with traffic. The Mansion House Association, he pointed out, awaited a courageous lead from British Railways. He referred to one lead, given by a "prominent railwayman . . . who told us quite clearly what we can do with our bits and pieces if we do not give the railways a bigger share of the more attractive traffic and what will happen to our 'live' exceptional rates." This comment, as Mr. Bannard stated, is fair, provided that railwaymen first make every effort to attract the traffic by quoting realistic, competitive rates and giving efficient services. He also stressed what is undeniable, that there must be very few cases where it was not better for the railways to build up on the small traffic they might be carrying for a particular customer rather than take such action as would liquidate that traffic. Freedom for the railways to quote, he added, was as fair as that for the trader not to accept a quotation or to withdraw traffic. That may well be, but expediency surely demands boldness and some faith in the future of the railways, in quoting for and accepting traffic wherever possible.

The Mansion House Association represents a great many large-scale users and potential users of the railways; not the least of these is Unilever Limited, and Mr. Bannard speaks with authority. It would be idle to dismiss his plea, for boldness in quoting rates, simply as an *ex parte* desire by a customer for cheaper transport. Many large concerns depend very largely on the railways; they have, therefore, a vested interest in the survival of an efficient railway

system and for that reason wish the modernisation plan to be carried out, and as quickly as possible.

On the other hand, nothing is easier, as some newly-appointed commercial officers have found on railways in this country and overseas, than to quote an unremunerative rate which creates traffic, or serves to capture it from a rival means of transport, but remains unremunerative because the cost of conveyance remains high. This presumably was what Sir Gilmour Jenkins, Permanent Secretary to the Minister of Transport, had in mind in his allusion at the same luncheon to "dropping gold bricks."

There is no question of British Railways being expected to quote permanently unremunerative rates; but they should bear in mind that a low rate quoted in time may result in traffic which can be built up to the point where bulk transport makes the rate profitable. The same consideration applies to refusals, which may also alienate a potential user of the railways for more profitable traffics. Judgment must be exercised; we do not advocate that British Railways should meekly agree to carry anything thrust on them by a trader who despatches his more remunerative traffic by other means and dumps an awkward and, to the railways, unremunerative residue of traffic on them. The railways by now should be well equipped by their costing organisation to know what traffic is, and is likely to prove, profitable. The question arises how far costing slows down the quotation of rates by necessitating reference to headquarters. Two points made by Mr. Bannard should be borne in mind by railway officers. Mr. S. E. Raymond, Chief Commercial Manager of the Scottish Region, suggested in a paper, the subject of editorial comment in our January 31 issue, that customers might take longer to get used to the new basis of rate quotation than railwaymen might take to learn it. On the contrary, Mr. Bannard pointed out, the traders were eager and ready looking for whatever new and bold measures might benefit all concerned. He was thinking, no doubt, of the larger railway users, who have staff who can study the implications of the charges scheme.

He referred also to the recent decision not to demand signature, by consignors, of indemnities except where a facility is granted which may involve risk, without any payment in consideration from the trader. This removal of what was certainly an irritant to traders is a forward step, but apparently little publicity has been given to it. On the question of irritants, he also mentioned demurrage. This surely should be waived in any but the most extreme cases of delay. Wagon turnround should be reduced by the railways; slow transits and terminal delays by railway staff increase turnround more than does detention by traders.

A good many potential consignors by rail complain of slowness in quoting, because the railway representative with whom they deal must refer the matter higher. It is hard to see why delays should continue to occur. First, a freight charges scheme involving a new rates structure has been foreseen for several years and indeed the whole concept of freedom in charging dates back to the "Square Deal" campaign of 20 years ago. During the last few years the science of costing railway transport has been actively developed. Some method, therefore, of determining with reasonable speed the profitability of rates fairly quickly and of comparing them with rates already quoted must by now have been devised. Second, the new traffic organisations in four Regions were devised to afford flexibility in quoting rates. Are these facilities being made use of? Are commercial staff at all levels being impressed with the necessity of giving a soundly-based quotation quickly? It would be absurd to expect the economics to have been worked out for a great many different cases; there is bound to be an element of risk in quoting. Such risk is often better than quoting so late that the customer looks elsewhere for his transport.

The railways can show boldness in also developing new traffics. It would be reassuring to hear that the economics of various methods and devices such as "piggy-back" transport, and the "railvan," the latter, in effect a container which can run on rails, the subject of current experiments in the U.S.A., have been thoroughly investigated. They raise a whole series of commercial questions, to which the answers must be forthcoming not later than are those to the technical problems involved.

Mr. Bannard concluded by expressing the approval of the generality of traders of the present degree of freedom of choice of transport. The transport industry, he added, should be allowed to settle down without further political interference—a truth which the present Government seems to have realised. "We are not," he stated, "interested in cut-throat competition or in a surplus of transport facilities, but in a healthy and financially sound transport industry as a whole." Nothing could be fairer to the railways than that, and action now lies with them to take advantage of their freedom.

Railway Expansion in Brazil

THE most notable event in Brazil in recent months affecting the railways has been the formation of the corporation, Rede Ferroviaria Federal S.A. Lines owned and administered by the Union, and those that may in future be transferred or have their leases rescinded, are converted into joint stock companies and incorporated in R.F.F.S.A. This body is administered by a board of seven directors, elected at general meetings for four-year periods, who appoint one of their members as President. R.F.F.S.A. administers isolated railways through superintendents appointed by the board. Subsidiary companies are administered by boards of directors. The initial capital is subscribed directly by the Union, partly by transfer to the corporation of rights and assets of the 20 incorporated railways. Of these the Central of Brazil, North Western, Nordeste (formerly Great Western of Brazil), Rede Mineira de Viacao, and Parana-Sta. Catarina are classified as under independent managements, and the Santos-Jundiahy, Ilheos, and Tocantins Railways under a special form of management.

Under a contract signed recently with Export-Import Bank of U.S.A. for a U.S.A. $100,000,000 loan, the R.F.F.S.A. undertakes to revise the various projects for reforming the incorporated railways and submit its proposals to the bank for approval. Until the debt is repaid, the corporation will supply the bank with reports, detailed programmes of works to be undertaken, and particulars of expenditure. Re-conditioning of 10,000 miles of permanent way, to be completed within five years, is to be carried out by private contractors, who will employ the specialised staffs hitherto maintained by the railways for such work. The R.F.F.S.A. has taken over the freight and other road vehicles, belonging to the several railways.

A factory to build stainless steel passenger coaches, operated by a Brazilian firm under the direction of the Budd Company of U.S.A., has been started in Sao Paulo. The coaches will resemble those recently delivered to the Santos-Jundiahy Railway, namely: weight 40 tons and length 82 ft., with accommodation for 94 seated and 306 standing passengers.

There have been many developments on the individual railways. On the Leopoldina, six diesel-electric locomotives, the first of an order for 18, have arrived for the suburban lines at Rio, 20 reconditioned passenger coaches have been brought into service, and Brazilian builders are to deliver 50 new steel passenger coaches. Ten additional trains are running daily between Rio and Duque de Caxias this year. The work of electrifying the section, now starting, will permit the running of 75 trains daily each way.

The opening to traffic of the 116-mile section between Campina Grande and Patos, in Paraiba, has completed the link-up of the Ceara and with the Nordeste Railways. Some 400 miles of track are being renewed on these two lines this year. The Nordeste will place in service 22 diesel-electric locomotives, 570 wagons, 43 passenger vehicles, and eight railcars. The Ceara is to take delivery of five diesel-electric locomotives, 120 wagons, 15 passenger vehicles and four railcars. The Sampaio Correia (236 miles) and Mossoro-Souza (151 miles) Railways have been incorporated in, and connected with, the Nordeste.

Reconstruction at Barking

THE complex reconstruction scheme at Barking, Essex, described elsewhere in this issue, is the principal major work essential to electrification of the London Tilbury and Southend Line of the Eastern Region of British Railways. It involves building a new double-track bridge over the River Roding and a main flyover west of Barking passenger station to carry traffic to and from Woodgrange Park, and to and from the north and west; over the main Fenchurch Street to Southend Line; and over the London Transport District Line to Upminster. A second flyover west of the station will carry the westbound District Line over the Fenchurch Street Southend Lines, and a dive-under east of the station will enable westbound London Transport trains to pass under the Fenchurch Street-Southend Line.

When the scheme is completed it will enable more Eastern Region trains to run with greater punctuality and facilitate improvement and increase of the District Line service. The flyover will eliminate crossing movements of freight trains; result in better freight services; improve public facilities through the station; and allow cross-platform interchange for passengers between Eastern Region and London Transport services. The transfer of Barking goods yard to Ripple Lane will also provide for expansion. The civil engineering work has inevitably caused some deviation of services, but efforts have been made to minimise inconvenience to passengers and maintain services as near to normal as possible.

The new marshalling yard at Ripple Lane, like the Barking reconstruction scheme, is a prerequisite of the electrification of the passenger services on the Tilbury Line and will replace five existing yards. The outstanding feature of the new yard is the provision of direct access to the reception sidings for both up and down traffic. Ripple Lane was the first yard designed to incorporate this facility and the design has since been applied to other new yards. Extremely poor ground conditions throughout the site have led to considerable difficulties in construction. Surveys of the ground indicated that the pile-up of spoil above the surface should not exceed 12 ft. In the circumstances it was decided to excavate the ground to a depth of 20 ft. on the site of the hump, and start building from that level. It was also necessary to pile all other structures.

Heavy Fuels for Rail Traction

BECAUSE of the lower price of residual-types of fuel oil compared with oil of the more normal characteristics, a number of railway authorities are displaying keen interest in the use of the former for rail traction diesel engines. This has led to a number of "dual-fuel" installations on some U.S.A. railways, including the Southern Pacific, Seaboard Air Line, and the New York Central.

One of the aims of the paper presented to the Institution of Locomotive Engineers on Wednesday, entitled "Fuels and Injection Equipment for Traction Diesel Engines," was to describe some of this work and the problems that arise thereby. The authors of the paper are Mr. H. A. Gill, Manager, Technical Service, Diesel Engine Division, English Electric Co. Ltd., and Mr. J. M. Smith.

The authors of this paper point out that a typical rail traction engine will consume its own weight of fuel in under 100 hr. of operation or, alternatively, 50 to 100 times its own weight in a year. Thus, for a single locomotive of 1,500 h.p. the normal fuel consumption may be of the order of 300,000 gallons and a difference of only one penny per gallon in fuel cost will amount to over £1,000 per locomotive a year. The possibility of using lower-grade fuels is thus attractive, provided that the complications which attend the use of cheap fuels are not too expensive. It is also emphasised that in the view of the authors, there is no technical advantage whatever in using inferior fuels, although the contrary has sometimes been adduced.

On the question of handling and storage, the need for well planned and equipped facilities at railway depots is stressed. The design and layout of the storage tanks and fittings, filtration unit, and so on, are discussed, the effect of the heavier oils being also mentioned.

A deal of attention and research, particularly in the U.S.A., is being directed at fuel stability in handling and storage. Some fuels if exposed to strong light or stored for any length of time will separate into several portions, the heavier contents coagulating and ultimately falling to the bottom of the tank together with any sediment present. Such fuels, as they stand, are, of course, completely valueless for use in a diesel engine, but the present research work indicates that stability and successful engine operation can be obtained by treating some of these fuels with suitable dopes. It has been reported that if the fuel particle size can be reduced to one-tenth of a micron, or less, stability and good engine performance is assured.

After dealing, generally, with fuel injection systems, mention is made of the increased possibility of carbonisation inside injector spray holes, when using residual fuels. This destroys the normal spray pattern by depositing carbon, possibly to a thickness of ¼ in. or more, round the spray holes in the form of small trumpets through which, in most cases, small passages remain open. Injector tip fouling is the most potent cause of inferior engine performance on low grade fuels and is especially prone to occur in periods of light load or low-speed operation. Exhaust turbo-charged four-stroke engines, the authors state, have a remarkable ability to utilise low grade fuel under high load conditions, but the reduction in charge pressure at low loads is considerable, and injector tip trumpets may form then to an extent that subsequent increase of load may not clear.

The great difficulty in cold engine starting, which may be experienced when using residual fuels, has led to the considerable investigation of "dual-fuel" operation already mentioned. The principle, which can only be achieved at the expense of a great deal of installation complexity, is that distillate fuel may be used for starting and at all loads below a predetermined value, with changeover to residual blend fuel for higher load operation when the engine has gained sufficient heat. The changeover can be complete, as in one system utilising distillate up to a throttle position corresponding roughly to about 40 per cent load and employing blended fuel in all higher throttle positions, or the change can be gradual so that residual fuel is mixed with distillate for supply to the injection pumps; the proportions of residual being steadily increased with load until at and above a certain load only the low grade fuel is consumed.

Discussing the aspects of maintenance and servicing, the authors state that generally, given good clean oil, modern fuel injection equipment gives a good account of itself and has a reasonable life. Its chief enemy, is dirt in the fuel. Abrasive contaminants can soon result in wear on the controlling edge of the injector pump plunger helix, leading to difficulties in maintaining balanced cylinder power outputs over the load and speed range necessary in a traction engine. Under these conditions contamination of the lubricating oil can also occur. A more severe effect of abrasive, however, than this is the wear of injector nozzles; scouring occurs, and rapidly produces conditions to cause a fall off in combustion efficiency.

The paper concludes with some notes from field experience related to the paper. One of these is cylinder wear: when using heavy fuel with standard cylinder liners normal wear rates can easily be quadrupled; however, with chromium plated liners and heavy fuel a position of *status quo* would appear to be obtainable. "Hard-facing" is used to prevent premature replacement of inlet and exhaust valves due to pitting and burning. Pistons and piston rings have also come in for special attention, and different forms of protective treatments have been applied by the various manufacturers.

Although the most difficult of all applications of diesel engines running on heavy fuels will be the traction engine, the authors believe the desired end can be achieved with

perseverance; but as they point out, if the price differential between light and heavy fuels were to disappear, as might easily happen if the demand for heavy oils were to outstrip gas oils, the whole point of this research and development would be negatived. Also, with the continuing development of oil refinery techniques, the retreatment of the heavy ends of the refining process may eventually take residual fuels off the market.

Downward Trend in Railway Freight Traffic

(*By a correspondent*)

FROM 1949 to 1957 British Railways originated over 21 million tons of freight train traffic in the first four-week period of each year. This year's initial tonnage was only 20,439,000, a decrease of 2,460,000 tons, or 10·7 per cent, from 1957. Three factors help to explain this abrupt fall. In January, 1957, restricted supplies of fuel oil curtailed road haulage and inflated rail carryings. Steel output in January this year averaged 407,100 tons a week against 415,900 tons in 1957. For the first nine weeks of 1958 the National Coal Board reported a decrease of about 4 per cent in coal output, totalling over 1,600,000 tons in the whole period; inland consumption fell off nearly 2 per cent and only 895,000 tons of export and bunker coal were shipped, a decrease of 480,000 tons, or more than a third, at a time when the United States was sending overseas about 5,000,000 tons of coal every month. Apart from these adverse influences, production in January by all industries was, according to official estimates, as good as in 1957.

The grim fact remains that in January our railways carried no more than 2,928,000 tons of merchandise (including livestock), a decrease of nearly 20 per cent from the previous January and 1,419,000 tons, or almost a third, less than were handled in January, 1949. While merchandise accounted for 14 per cent of the January tonnage, its long average haul entailed the working of 421 million ton-miles, 27 per cent of the total ton-mileage of 1,514 million. This volume of merchandise movement was 19 per cent lower than a year ago.

Mineral tonnage of 4,583,000 was down by 728,000 tons, or 13·7 per cent, and mineral ton-miles totalling 346 million were 80 million fewer, a decrease of nearly 19 per cent. Declarations of coal and coke were disappointingly poor at 12,928,000 tons, over a million tons, or 7·2 per cent, behind 1957. They involved the working of 747 million ton-miles, 49 per cent of the January total but 9 per cent under last year's figure. Altogether freight movement in January shrank by 257 million ton-miles, or 14·5 per cent, compared with the 1957 total of 1,771 million—almost a record for the first four weeks of the year.

Every Region showed a decrease in traffic of all classes and in the resultant ton-miles. The Eastern was hardest hit, failing to hold 670,000 tons, or over 16 per cent of its 1957 forwardings. It lost 165,000 tons of merchandise, 28·5 per cent of 1957 loadings, 247,000 tons of minerals (nearly 22 per cent) and 258,000 tons of coal and coke (10·6 per cent). The London Midland fared badly also, dropping 800,000 tons (11·7 per cent) from 6,837,000 originated last year. Its largest loss was 349,000 tons of minerals (19·3 per cent), which contrasted with a decrease of 31,000 tons (3·2 per cent) in the North Eastern and a slight fall of 9,000 tons (1·6 per cent) in the Scottish Region.

Coal and coke loadings on the London Midland amounted to 3,707,000 tons, 28 per cent of the all-line forwardings, but 234,000 tons (6 per cent) less than a year ago. The Scottish Region did well to load all but 6,000 tons of last year's coal class tonnages, but North Eastern loadings of 3,261,000 tons were down by 256,000 (7·3 per cent) and the Western had a larger proportionate decrease of 8·7 per cent.

Some of the causes of the steep downward trend in freight carryings are not far to seek. In many areas the competition of road hauliers is keener than ever. These freelance carriers are very enterprising; they canvass vigorously for business of any and every kind, making no fuss about exceptional demands for quick conveyance or awkward loads. Some traders, who have ample siding accommodation, find motor vehicles more serviceable for moving material within their works than railway wagons which have to be shunted by locomotives—often a costly process. Again, every rise in railway rates and charges rouses transport users to devise ways and means of keeping down their railway accounts. If the railways are to ensure full employment for their freight rolling stock, they will have to improve contacts with potential customers and provide efficient services at suitable prices.

Letters to the Editor

(*The Editor is not responsible for opinions of correspondents*)

Refreshment Rooms

March 4

SIR,—Nearly all rail travellers must have noticed the immense improvement which has taken place over the past 10 years in the standards of attractiveness and service at British Railways station refreshment rooms, even although prices of some drinks and food have soared considerably beyond those applying at outside establishments.

Although a full list of the rooms appears in each Regional timetable, with some indications of the service given, no one seems to have thought of showing the hours of opening and closing. Some cross-country trains and many semi-expresses are, quite justifiably, not provided with refreshment facilities; but why should passengers electing to use them be unable to tell where they may rely upon obtaining something at the stations?

A passenger on the 5.5 p.m. from Blackpool to Euston, for example, should be told that he can ease this tedious journey by hopping out at Stafford or Rugby. Does the passenger for Swindon on the 6.40 p.m. from York know that Nottingham (9.30 p.m.) is his last hope until he reaches his destination at 2 a.m.?

It may now be too late to add this information to the summer timetables, but there will be little excuse if it is omitted from the winter issues.

Yours faithfully,

C. R. CLINKER

9, Regent Place, Rugby

A.C. Traction Motors

February 28

SIR,—I entirely agree with Mr. G. H. Hafter's comments in his letter in your February 21 issue, regarding the unsuitability of a.c. motors for freight locomotives where starting conditions are so unpredictable and varied; but for motors on multiple-unit stock where the weight of train per motor and rate of acceleration is fixed, the a.c. motor should be completely acceptable.

On a typical a.c. motor coach with its normal complement of trailer coaches the tractive effort on starting per motor per ton of train weight would be about 200 lb.; of this, maybe 185 lb. is required for acceleration if the train is on the level. If a gradient of 1 in 100 grade is encountered, then 221 lb. per motor is required for ascending the gradient. As this is a small percentage of the total tractive effort, acceleration will not be appreciably reduced and commutation would not suffer. If very steep gradients are a regular feature of a particular motor coach run, then the corrections on the motor would be arranged to take care of the longer period at low speeds.

It has been shown theoretically and proved in practice, that high adhesion factors are possible with the a.c. motor. This allows high acceleration rates which in turn eases the commutation problem, at starting.

Yours faithfully,

H. CHARNLEY

Brook House, Clayton-le-Woods, Nr. Chorley, Lancs.

THE SCRAP HEAP

For What We Have Received

A passenger had just finished his lunch in the restaurant car, when he heard one attendant turn to another and say, "He's eaten it!"

Pony Express

An article on the Midland Railway mounted messenger service in 1902, published in the London Midland Region edition of the February issue of *British Railways Magazine*, relates the experiences of Mr. Alexander Smith, now aged 70. He joined the M.R. in 1902. His duties included grooming and care of the horse. His round is described, when "clad in his dark uniform and gaiters, and wearing a pork-pie cap bearing the wyvern of the Midland Railway he set out for Aldersgate Street. . . The time for the [round] journey was about 45 min. which included calling at the various offices to deliver and pick up letters."

Each railway company had its mounted messengers, and when the first new potatoes were due from Jersey, messengers used to race each other across Waterloo Bridge, to be the first on the spot at Waterloo Station and bring the invoices quickly to their offices.

So Patient

In the course of my work with a London charity I have often shared an office with the stationmaster's clerks at Waterloo.

I have been impressed by the infinite patience, courtesy and consideration with which they deal with the complaints and problems of the travelling public.—*From a letter to the "Evening News."*

Vertical Boiler Locomotive

A correspondent states that the Italian State Railways 0-4-0 vertical boiler locomotive illustrated in the Scrap Heap of February 28 is a relic of the steam railcar fashion of the earlier years of this century, being the locomotive portion of a powered baggage car which started life with the 0-4-2 wheel arrangement.

In 1907, the State Railways had 85 of these vehicles built. They spent only six or seven years in their original condition. Two or three different modifications were tried. In two of the vans orthodox locomotive boilers were fitted. Seventeen were rebuilt as 0-4-0 tank engines. Others were converted as heating vans for electrically hauled trains.

Wheels within Wheels

Hr. Gunnar Hägglöf, Swedish Ambassador in London, in a book published in Sweden, on his country's foreign trade policy during the second world war, reveals that Russia, during largely fruitless negotiations in 1940, asked Sweden to deliver such numbers of railway wagon wheels that they would have satisfied the annual demand of the entire world.

Steam Preferred

A bottle of cold tea in front of him, Driver William Davies released the brake, sat back in his well-sprung driving seat, as the great green leviathan slipped away from the platform, lit a Woodbine and announced, "Steam's more interesting." I was travelling on the footplate of a Wolverhampton-Euston diesel main-line locomotive. The cab was small, but cosy, enclosed, well-heated. There was an electric kettle and a constant barrage of cups of tea brewed by Fireman Ken Eastwood. Why then the bottle of cold tea? For much the same reason that Driver Davies prefers steam to diesel. He likes it, and he has always had it that way.—*From the "News Chronicle."*

Pre-fab Stations

(*See our March* 14 *issue*)

Miracle of fabrication!
Just three weeks to build a station.
Not a sort of stately fane,
Built four-square to wind and rain,
Stone by stone and brick by brick—
Pre-fab technique does the trick.
Quit the groove, forsake the rut,
There's no sense in staying put;
Never mind what's gone before;
If we can't have "door-to-door,"
Then the next best thing should come—
Build the stations nearer home.

Or—intriguing situation—
We may find a railway station,
At the point of no return,
Setting out one day to earn
Fresh renown by chasing freight;
That, indeed, would stimulate
All and sundry, as they strive
Earnestly to keep alive.
Any step towards perfection
Must be in the right direction,
So the next advance, one feels,
Must be stations built on wheels.

A. B.

The Great Northern Again

(*See editorial comment on page* 325)

RIGHT AWAY, ***under re-organisation!***

conversation on platform one . . .

"I hear we are Great Northern again. What's been going on?"

"Well, briefly Sir, the Eastern Region has been split up and the Great Northern Line is virtually an independent organisation within the Region: the Great Northern in turn is divided into four Areas: Sheffield, Doncaster, Lincoln and King's Cross, each under a Traffic Manager."

"And is this going to make any difference?"

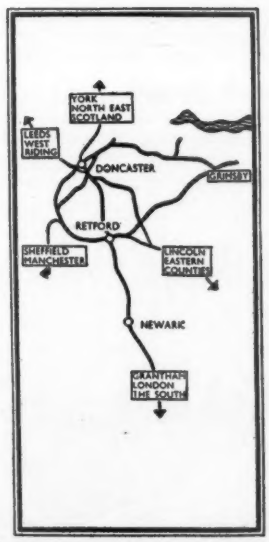
"Yes, it is. Each Traffic Manager is now responsible for all details connected with the movement of passengers and freight affecting his Area. Traffic Managers on the spot will ensure that the individual requirements of industry and commerce are met effectively and quickly."

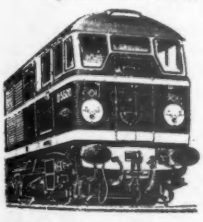
"So we can expect a closer appreciation of our needs and quicker action to meet them?"

"Exactly. Your Traffic Manager at Doncaster is Mr. E. J. Stephens, King's Arcade Chambers, St. Sepulchre Gate, Doncaster."

"Thank you. Very interesting."

"A pleasure Sir. Good travelling."





The Great Northern Line will continue to keep you informed over the next few months of the many services and facilities provided.

forward GREAT NORTHERN

Part of an advertisement in a recent issue of the "Doncaster Chronicle." Above the letterpress is a wash drawing showing a guard despatching a train while a stationmaster talks with a passenger on the platform

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

INDIA

Signal School at Secunderabad

A signal and telecommunications school, the first of its kind in India, has been established at Secunderabad on the Central (formerly Nizam's State) Railway. It will provide officers and inspectors with a short, intensive training in all branches of signal engineering and telecommunications before they are entrusted with the actual work of construction. The second Five-Year Plan alone will require 60 officers and 600 inspectors.

The teaching staff consists of a principal, two lecturers—one for signalling and the other for telecommunications—and six instructors, one each for mechanical signalling, power signalling, land-line communications, wireless communication, drawing, and workshop practice. The estimated cost of the project is some £85,000, which includes provision of staff quarters and laboratory equipment.

New Lines

The Minister of Railways, Mr. Jagjivan Ram, has stated that construction of more than 500 miles of new lines is in progress; work is also proceeding on doubling 800 miles of line. Two important new lines are included in the construction programme; these are the 100-mile Robertsganj-Garawal line of the Northern Railway and the 40-mile Muri-Ranchi connection of the Eastern Railway. Some 1,600 miles of surveys have been completed. The import of steam locomotives has now been stopped except for the few required for narrow-gauge lines.

Facilities in Madras Port

To cater for iron ore exports and a general increase in traffic through the port of Madras, a new yard has already been laid on the foreshore of the present Madras Harbour. Construction of quays is in progress and is expected to be completed about the middle of 1958. A separate marshalling yard for accommodating wagons from the mining areas in South India is also being laid out on the foreshore opposite to Fort St. George. When these works are completed, the port is expected to handle about 1,000,000 tons of ore a year.

VICTORIA

Gas-Generating Plant Closed

A link with the days when carriages were gaslit has disappeared from Melbourne in the closing down by the Victorian Railways of their plant for manufacturing Pintsch gas from crude oil.

Although gas is now used to only a limited extent for passenger-carriage lighting in country areas, it is needed for cooking and refrigeration in refreshment cars.

In future, gas compounded of a mixture of waste petrol gas from a large oil refinery near Melbourne and town gas from the West Melbourne gas works will be used instead of Pintsch gas. This will save some thousands of pounds a year in operating costs and also avoid the necessity for replacement of costly gas-making plant.

Track Improvements

Faster and heavier traffic will be possible when work on the track between Ballarat and Serviceton, on the Victorian and South Australian border, is completed. A 10-mile stretch of rails and sleepers is being replaced between Horsham and Dimboola.

SOUTH AUSTRALIA

Effect of Fall in Metal Prices

The recent fall in world metal prices has caused two of the largest Broken Hill mining companies to cease sending zinc concentrates to Port Pirie by rail. Only quantities required for Tasmania are being railed; the remainder is being stockpiled at Broken Hill for an indefinite period.

Ore trains are worked from Broken Hill to the South Australian border at Cockburn by the Silverton Tramway Co. Ltd. and thence to Port Pirie by the South Australian Railways. It is estimated that the latter may lose up to £20,000 a week in freight.

Before the decision to hold stocks at Broken Hill, about 19,000 tons of ore concentrates a week were being consigned by rail to Port Pirie.

UNITED STATES

Pullman Safety Record

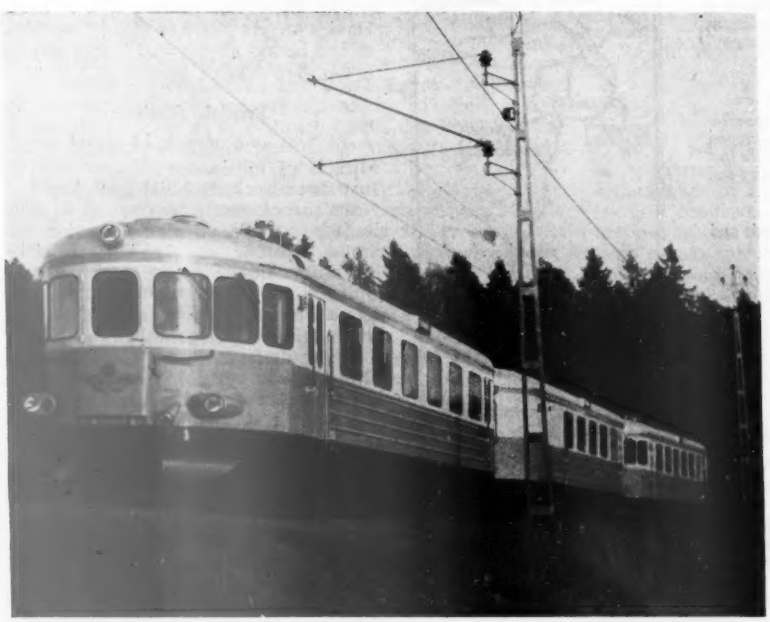
In the six years between November 12, 1951, and the corresponding date in 1957 not a single passenger was killed while travelling in a Pullman car in the U.S.A. During this period 73,000,000 Pullman passengers have been carried 45,000 million miles.

Inflatable Cushions for Freight

Inflatable cushions, developed by the United States Rubber Company, are being used to protect wagonloads of freight in transit. The cushions are made of nylon fabric coated on each side with neoprene plastic, and contain a rubber air sack fitted with a large diaphragm valve. They can be expanded by air pressure of 1 to 10 lbs. per sq. in., and when fully inflated are 4 ft. × 4 ft. or 4 ft. × 5 ft. in size, have side contact surfaces measuring 40 in. × 40 in. or 40 in. × 50 in., and weigh between 28 and 33 lbs.

When the containers have been loaded into a wagon, the space between

Railbus Operation in Sweden



Swedish State Railways diesel railbus train of two power cars and intermediate trailer; these lightweight vehicles have proved successful in regaining traffic

each container is measured to ascertain the number of cushions required to fill the gap. The cushions are partially inflated for easy handling, and then, when in position, fully inflated to absorb shock and prevent the freight shifting during transit.

ARGENTINA

Railway Budget for 1958

The State Railways have prepared for Government approval their budget for 1958, amounting to 9,886,854,000 pesos.

Rosario Railway Hospital

A railway hospital with a capacity for 400 patients has been inaugurated at Granadero Baigorria, near Rosario.

FRANCE

Portes Marshalling Yard

In connection with electrification of the Lyons-Marseilles line, the marshalling yard at Portes, between Valence and Livron, has been modified to enable it to deal with longer trains and 2,000 wagons a day. On electrification, most goods trains will be routed along the main line on the left bank of the Rhone. Four R.52 Saxby light track brakes have been installed.

Electrification in Northern Region

Work in connection with the Paris-Lille electrification includes increasing the clearance of the Pont Royal, Amiens, by 2 ft. 8 in. and that of the Pont Marcadet, Paris, by 2 ft. 3 in.

In the latter case, the increased clearance was obtained by raising the deck of the bridge, weighing 2,200 *tonnes*, by jacks; great care had to be taken to avoid deformation of the deck. The work was carried through in six days without interference to rail traffic.

At Amiens the bridge was reconstructed. A new structure was erected adjacent to the old bridge. It was essential that the two 85-*tonne* girders supporting the concrete deck be moved to the site by rail and lifted into place by an 85-*tonne* Cockerill crane from the Villeneuve-Saint-Georges depot. The girders were transported in three sections to the bridge site, the sections riveted together on the site, and then lifted into position by the crane. The work involved on each girder necessitated only a five-hr. interruption of traffic.

Binding of Sleepers

In an effort to extend the life of sleepers which show signs of splitting, the S.N.C.F. has for many years been securing the ends with a steel band held in place by various forms of buckle, stud, or spike. Use is now being made of a machine specially designed to use non-galvanised iron strip, secured in position around the sleeper by means of electric arc welding. This is stated to produce a more efficient binding at a more economic cost.

HUNGARY

Motive Power Depots

A diesel workshop to be built at Köbánya, Budapest, will have two overhead cranes capable of shifting 150-ton loads from one shop to another, and a conveyor belt system for moving dismantled stock from one repair section to another.

Expansion of the Dunakeszi depot is northern Budapest, now in progress, includes 18 54-ft. wide repair bays, each accommodating eight locomotives.

A running shed now under construction at Székesfehérvár, is reported to be built on the roundhouse principle and to include a considerable amount of ventilation and other equipment of new design.

DENMARK

Diesel-Hydraulic Traction Tests

Proposals for a changeover to hydraulic transmission for diesel locomotives of the State Railways are now being closely examined. Electric transmission has hitherto been standard practice.

A series of test runs with a 440-b.h.p. diesel-hydraulic locomotive is to be carried out. If the result is satisfactory, hydraulic transmission may be adopted as standard for freight locomotives.

POLAND

State Railways in 1957

In 1957 the State Railways carried 930,000,000 passengers; the average number of journeys per head of population was 34. The total tonnage of goods carried was 236,486,000; coal was the main item. Transit traffic from the Baltic ports to Czechoslovakia and from Russia to Eastern Germany increased by 55 per cent. Import traffic increased by 26 per cent. There was, however, a very small increase in wagon user.

In locomotive coal consumption, there was a saving of 460,000 tons, compared with 1956, against one of 70,000 tons in that year compared with the previous year. A better variety of coal was available for locomotives. The State Railways intensified their own system of checking at the pithead, and refused to accept substandard coal.

Publications Received

The Grand Trunk Railway of Canada. By A. W. Currie. Toronto: University of Toronto Press. London: Oxford University Press, Amen House, Warwick Square, E.C.4. 9¼ in. by 6 in. by 1¼ in. 556 pp. Price £3 8s.—For nearly 75 years the Grand Trunk Railway, projected in 1852 as the longest railway in the world, was one of the most important institutions in Canada. It was a pioneer in design and management, in finance, and in the economic inter-relations of Great Britain, the U.S.A., and Canada. In fact, it gave Canadians one of their earliest experiences with "big business." In this study, Professor Currie has dealt primarily with the story of the railway as a business institution. In its later years the Grand Trunk was characterised as the world's worst commercial failure. To those who are interested in Canadian railways and their finance, as well as their profound effect on the economic development of the country, the author has prepared a study which cannot be ignored. He quotes frequently from the columns of *The Railway Gazette* and its constituents; annotations are profuse; and there is an 18-page index—which curiously omits Robert Stephenson.

Introducing the Traffic Manager.—In setting up its new traffic organisation, the Eastern Region of British Railways has sought to make clear to its customers, actual and potential, the freight and passenger facilities offered and supervised by the Area Traffic Managers. To this end a series of small booklets has been issued to introduce these officers to the public, and to outline their functions and those of their staffs. We have received those dealing with Kings Cross, Liverpool Street, Cambridge, and Norwich Areas. Attempts to build up the personalities of officers by publishing portraits, and so on, are not new in the railway commercial world. Included in each of these publications is a portrait of the Traffic Manager.

Serving the World.—This special souvenir publication has been produced by the British Electrical & Allied Manufacturers Association Publicity Department under a committee, with Mr. C. H. Chaplain as chairman, in connection with the 1958 Universal & International Exhibition at Brussels. The object is to publicise the achievements of the British electrical and allied industries. Mr. D. Heathcoat Amory, Chancellor of the Exchequer, contributes a foreword. The book briefly traces the development of electrical engineering from the days of Michael Faraday to the manufacture of electricity from nuclear fission. Articles on the allied industries, including water power, nuclear power, electric traction, and telecommunications, are accompanied by many excellent illustrations. Copies will be available for sale in Britain from the British Electrical & Allied Industry Section, 36, Kingsway, London, W.C.2, price 5s., plus 1s. postage and packing.

Rail-mounted Trench-digging Machine

Drastic reduction in labour costs in the Western Region through mechanised digging of surface water drains alongside track

Front view of trench-digging machine with excavating bucket chain in raised position

BELIEVED to be the first of its kind in the world, a rail-mounted trench-digging machine developed by the Western Region of British Railways enables seven men to do the work of 40, in less than one-third of the time, when excavating trenches for surface water drains alongside the track. The machine saves 86 per cent of labour costs on the site, the major portion of expense in any drainage scheme. It can dig a 6-ft. length of trench, 6 ft. deep and 2 ft. wide, in one min.

In the past two years, since final modifications to the prototype were completed, this machine, working only on Sundays with a team of seven men, has excavated 16,000 yd. of drain trench in 486 hr., at the same time loading the spoil into wagons.

Labour Saving

Had this work been done by manual labour it would have taken 40 men 1,700 hr. to complete. The nine miles of trench were excavated in varying depths to 6 ft. in all types of soil and formations, including boulder-strewn ground.

The estimate of 86 per cent labour cost savings is based on the size of the trench being the same whether done by machine or by hand. In actual working, if the work were done manually a trench 6 ft. deep would have to be wider than 2 ft.; thus the ratio of saving between the two methods would be greater than 14 to 86 per cent.

Another advantage of this means of excavating track drainage trenches is that work can be undertaken which would be impracticable by manual methods alone. If drainage on these sites were abandoned because of this, much more costly remedial works would, in time, be necessary to re-establish the track in a safe condition.

Engine and Transmission

The rail-mounted trench digger is driven by a 48-h.p. Perkins P6 diesel engine. The power to all motions is transmitted hydraulically.

The transmission is by a Plessey pump which supplies the hydraulic pressure

(*Continued on page* 337)

Excavation in progress at Churchdown

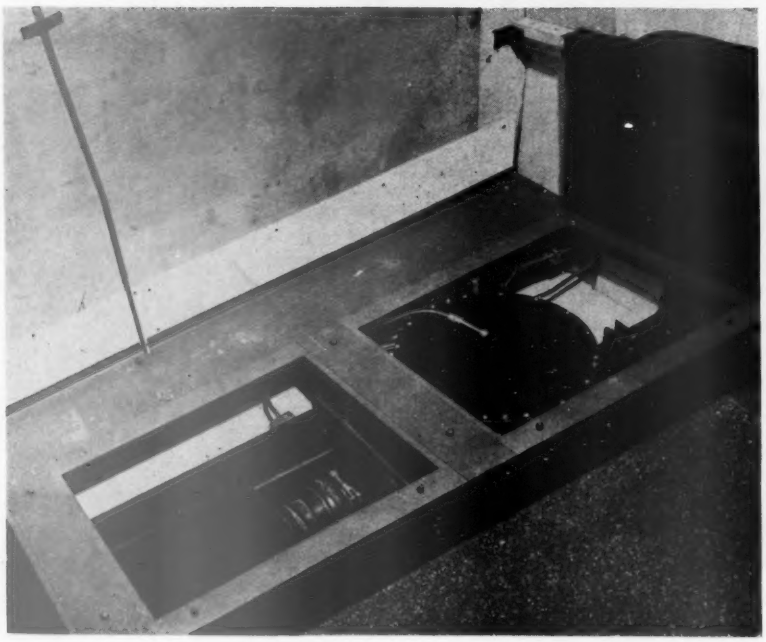
Completed trench, showing clean-cut sides

Work in progress at Churchdown, showing how forward movement for digging is effected by the hydraulically-driven winch winding in on a rope attached to the track ahead

Trench-digging machine in position for normal transport by rail, accommodated within the loading gauge, showing outrigger rotated into stowing position

Automatic Air-Temperature Control

Thermostatic equipment designed for use with British Railways standard heater



View of seat support framework, with cushions removed, showing (right) diaphragm valve and (through opening, on left) end of heater

IN the description in our issue of July 12, 1957, of the two prototype coaches built by the Gloucester Railway Carriage & Wagon Co. Ltd. for British Railways and exhibited at the Railway Travel Exhibition, Battersea, reference was made to the automatic temperature control unit fitted in two of the compartments of the first class coach.

The unit is a relatively simple device. It gives a controlled flow of warm or cool air through the compartment, and also an air flow over the window to prevent misting. Passenger-operated controls are provided for the closing of the ventilation air inlet and also for selecting the desired regulated compartment temperature.

It is claimed that the even distribution of heat increases passenger comfort, and that even under very cold conditions, it enables one heater per compartment to meet all normal requirements.

Layout of System

Located at floor level on the outside of the coach is an air scoop, protected by a grill; one is provided in each compartment. The scoop is fitted with a flap valve which swings over to make the scoop equally effective for either direction of travel. It is connected with an air trunk to a sheet metal casing which encloses the standard British Railways compartment heater, the shape of this trunk being arranged to trap any excessive moisture in the air stream.

The amount of air flow into the compartment is controlled by a butterfly valve in the air trunk, actuated by a push-pull cable connected to the standard on/off control knob. The control knob is situated in the standard position at either side of each window. In the intake pipe between the air scoop and the heater is a pitot tube, or pressure head connection. The latter is connected, through a T-piece, into a control pipe running from the passenger bimetal thermostatic control selector, mounted on the bulkhead of the compartment, to an air flow divider. The layout of the various components is seen in Fig. 1. The majority are located within the space occupied by the standard seat support framework in a compartment coach.

Control Valve

The operating element in the thermostatic control valve is a U-shaped bimetallic strip, the free end of which forms the valve controlling the release of pressure from the diaphragm valve

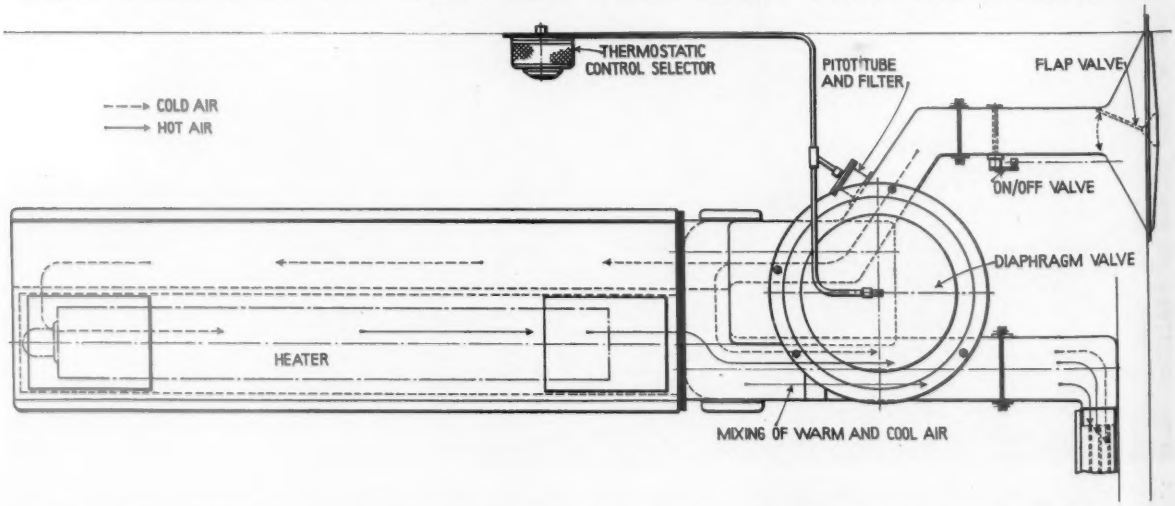


Fig. 1—Layout of heating system in the prototype first-class coach built by Gloucester Carriage & Wagon Co. Ltd.

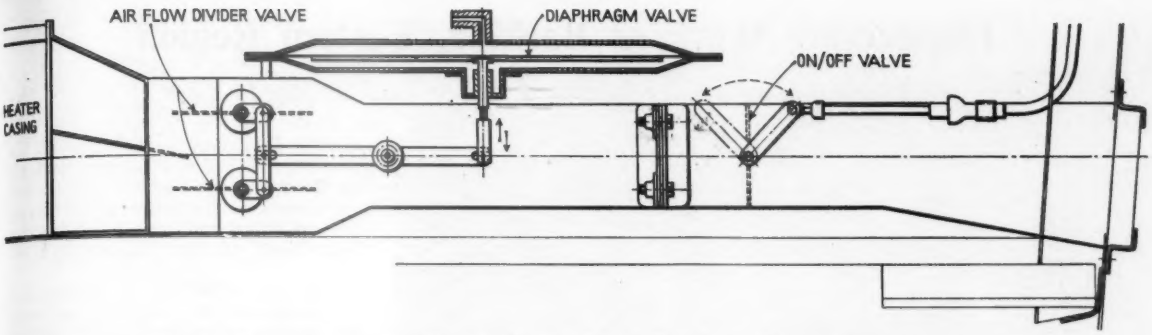


Fig. 2—Components controlling the flow of air passing over the compartment heater

control pipe. The passenger-operated selector on the thermostat enables the regulated compartment temperature at which the valve operates to be varied as required.

When the compartment air temperature is low, the thermostat valve is open thus releasing the pitot head pressure in the control pipe, which causes the diaphragm-operated air flow divider to pass more air flow over the heater. As the compartment temperature rises the pressure release on the thermostat tends to close and the pressure from the pitot tube then acts upon the diaphragm in the air flow divider, reducing the flow across the heater and restoring the system to balance.

Movement of the diaphragm actuates a linkage connected to two butterfly valves, the position of which proportions the amount of air passing over the heater. The various components controlling the air flow which passes over the heater are shown in Fig. 2.

A feature of the diaphragm control valve is that it is of large diameter for the duty required, thus making it both sensitive to control pressure changes and also stable in operation. A filter is incorporated in the pressure head connection to prevent flies or dirt choking the control pipe and thermostat.

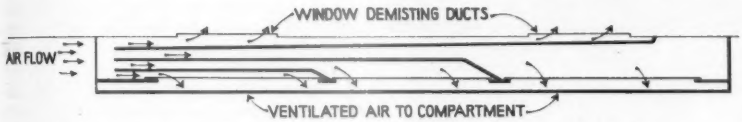


Fig. 3—Air splitting arrangement for de-misting and heating

Air Distribution

The heated air is discharged across the compartment through a grill at floor level under the window. Air splitters are used to obtain an even distribution of flow over the whole length of the grill and, in adition, to this flow: some of the air is diverted into ducts which direct a stream over the windows, thus acting as an effective de-mister (see Fig. 3).

The unit is relatively simple to install and it is claimed that no routine maintenance is required. It was designed and produced by the Technical Developments Division of the Gloster Aircraft Co. Ltd.

Rail-mounted Trench-digging Machine

(*Concluded from page* 334)

to motors supplied by Andrew Fraser.

Essentially the digging unit is a modified arrangement of the Barber Greene ditcher mounted on an adjustable outrigger, which in turn is secured to a rotating base for bringing the unit within load gauge when travelling.

The traction while digging is obtained by a winch winding in a wire rope anchored to the track ahead. The forward speed is infinitely variable between 1 ft. and 6 ft. a min. The width of the trench is normally 2 ft. and the depth can be varied, while excavating, down to 6 ft. below rail level. The distance from running face of the nearest rail to the centre of the trench is adjustable between 3 ft. 3 in. and 5 ft. 3 in. Another adjustment can be made when digging on curved track with cants up to 4½ in. to keep the bucket line vertical.

The weight of the machine in working order is about 30 tons, and during the past two years it has operated without significant mechanical failure.

The prototype design and manufacture of the original rail-mounted trench-digger was done in co-operation with Jack Olding & Co. Ltd., Hatfield, and the radical modifications to the machine were carried out under the direction of the Chief Civil Engineer of the Western Region, Mr. M. G. R. Smith, by Auto-Mower Limited, of Norton St. Philip, Bath.

At the present time, the machine is working at Redhill Junction, three miles south of Hereford.

ADDITIONAL N.E.R. DIESEL SERVICES.—The additional diesel multiple-unit passenger workings introduced in the North Eastern Region from March 3 include extension of the service between Bradford Exchange and Wakefield Westgate to Wakefield Kirkgate, Pontefract, and Goole; as a result the number of trains daily over the former L.Y.R. line between Pontefract and Goole has been increased from 8 to 12 in each direction. Of these, the 11.15 a.m. from Bradford, an express service, now runs through to Hull via Goole, arriving at 1.15 p.m., and returns express at 6.35 p.m., reaching Bradford at 8.53 p.m.; in connection with these trains the diesel service between Leeds Central and Castleford has been extended to Pontefract Monkhill. A new diesel service is running at hourly intervals between Leeds City, Normanton, Wakefield Kirkgate, and thence by the former L.Y.R. route through Haigh and Darton to and from Barnsley Exchange over the last-mentioned section, instead of nine trains each way daily, there are now 20. The three through workings between Huddersfield and Wakefield Westgate, which connects with expresses to and from Kings Cross and which require reversal at Wakefield Kirkgate, also have been taken over by diesel units.

SCOTTISH RAILWAY PASSENGER TRAIN ALTERATIONS.—To provide a more ample margin for connection with the down "Flying Scotsman," due Edinburgh Waverley at 4.58 p.m., the 5.10 p.m. from Edinburgh to Aberdeen now starts at 5.25 p.m., calls additionally at Burntisland and Kinghorn but ceases to call at Thornton, and reaches Dundee at 7.9 and Aberdeen at 9.11 p.m., 20 and 24 min. later respectively. The 5.20 p.m. from Edinburgh to Thornton starts at 5.10 p.m., and is extended to Dundee via Crail and St. Andrews, arriving at 8.17 p.m. Most of the additional summer trains from Glasgow and other Clydeside towns to the coast in connection with the Clyde steamers, announced in the timetable to commence running at various dates between May 24 and 31, are now being advanced to begin running early in April.

Engineering Work at Barking, Eastern Region

Reconstruction of tracks: new marshalling yard at Ripple Lane

Site west of Barking Station, showing (left) Eastern approach of Tilbury Line flyover, and (centre) piling for L.T.E. flyover

WORK is well in hand on the re-arrangement of the lines approaching Barking, on the London Tilbury & Southend Line of the Eastern Region of British Railways. This work is an essential part of the electrification of the 77 miles of route between Fenchurch Street, Tilbury, and Southend-on-Sea Central.

The project involves removal of Barking Goods Depot to a new site close to Ripple Lane marshalling yard; construction of two flyovers and a dive-under, new buildings at Barking Passenger Station, the design of which has yet to be settled and a new signalbox to replace existing boxes.

The St. Pancras-Tilbury lines at present cross the main lines on the level, east of Barking Station. The scheme involves the diversion of these lines northwards at the London end of the works and the crossing on the level will be eliminated by a flyover to the west of the station. An additional underline bridge has been constructed over Stevenage Road, and a new three-span bridge has been constructed over the River Roding. Ultimately, the tracks will be carried over the lines used by London Transport trains and the Eastern Region main lines, by means of the flyover. The tracks will return to the general level of the other lines west, and entirely on the south side, of Barking Station.

Similarly, with the tracks used by London Transport trains, all crossings on the level will be eliminated. The westbound London Transport track will be taken through a dive-under beneath the main lines at a point east of Barking Station and it will again cross the main lines west of the station on a flyover.

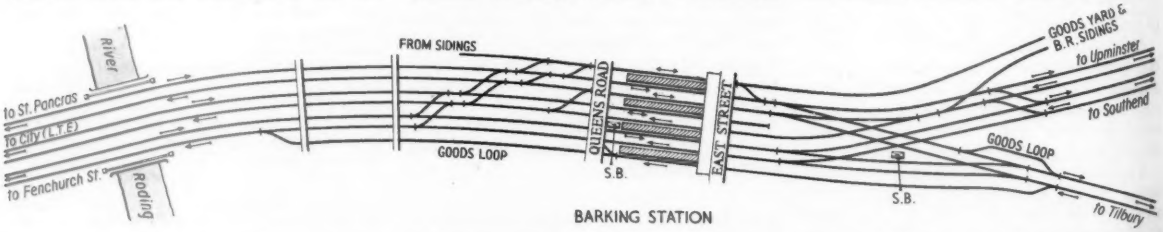
The re-arrangement of running lines will allow cross platform exchange at Barking Station between London Transport and Eastern Region services in both directions. A subway is being constructed to provide access between all platforms and certain platform lengthenings will also be carried out.

The principal structures required include a new footbridge over all tracks at Tanner Street and a footbridge alongside Queen's Road overbridge. Other works include the lengthening of one span of East Street Bridge and the construction of considerable lengths of retaining walls.

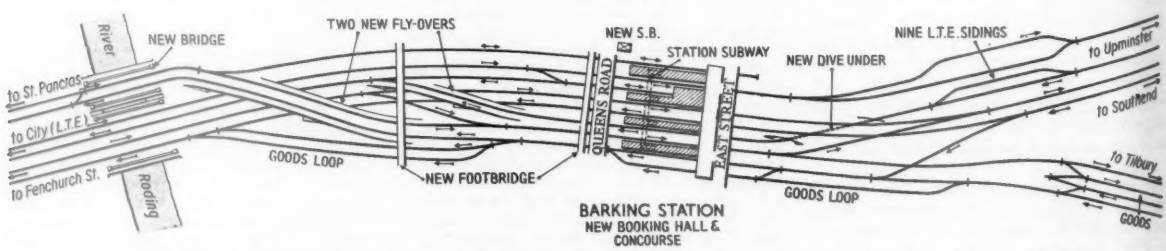
There will also be complete re-signalling, including the construction of a new signalbox which initially will replace two existing signalboxes (Barking West and East) and eventually will control all train movements as far west as Plaistow. The new box will also provide for London Transport District line signalling.

Flyovers

The Tilbury and London Transport flyovers are of similar construction. The main structure of the Tilbury flyover comprises three intersection spans connected and approached by a total of 16 40-ft. spans. The London Transport flyover has only one intersection span and the same number of approach spans. All the abutments and piers are constructed in mass concrete, and the



Present layout near Barking Station, showing crossings between the St. Pancras-Tilbury and Fenchurch Street-Southend lines



Future layout, showing flyovers for the St. Pancras-Tilbury and London Transport lines, and dive-under for London Transport westbound trains

decks are of composite pre-stressed construction.

The dive-under consists of a reinforced concrete invert and side walls. The walls are fully "tanked." A certain amount of strutting across the top of the deeper sections is provided. Where tracks cross the dive-under, the structure will be on composite pre-stressed concrete slabs. Drainage of the dive-under is dealt with by automatic pumps.

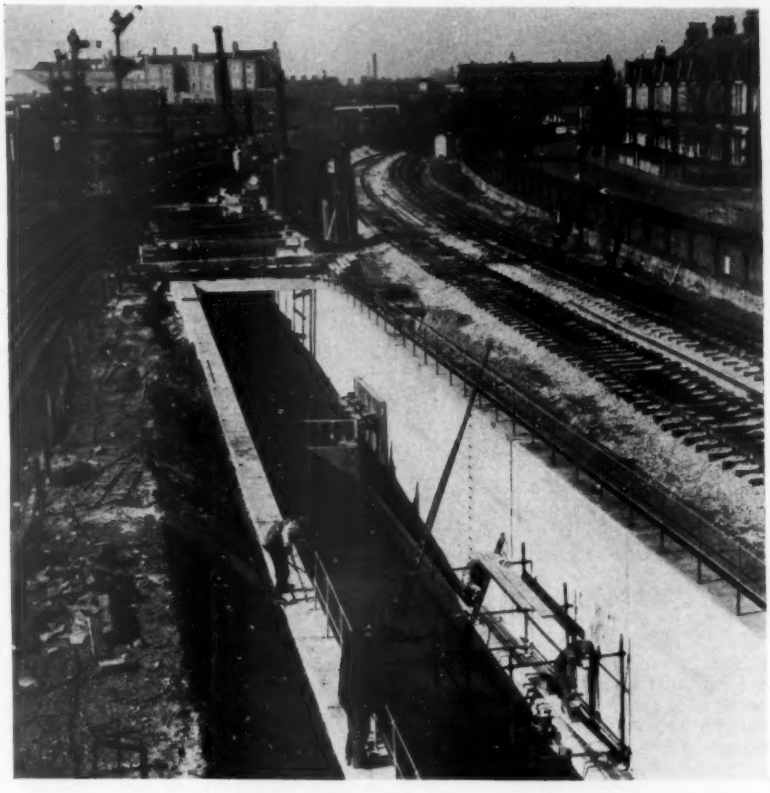
Bridges

The new River Roding Bridge is of three spans, each span about 56-ft.. It is of welded steel construction with a concrete deck carried on mass concrete abutments and piers. The Stevenage Road Bridge consists of a 30-ft. span of composite pre-stressed concrete slab. The Tanner Street footbridge is of all-welded steel girder construction on pre-cast reinforced concrete piers. The maximum span is some 95 ft. Use has been made of an "Usk" type of tubular steel footbridge at Queens Road, erected independently of the road-bridge.

To the west of Barking Station it has been necessary to use piles for the support of most of the structures. This piling work has been carried out in Holmpress driven and expanded in situ concrete piles. Because of the sulphate content of the ground water, metallurgical supersulphated cement has been used in most of the piles and structures below ground level.

The general scheme of staging adopted was to construct the perimeter works during the first stage and thereafter progressively to move the tracks outwards to give sufficient space to construct the flyovers and other works. Later the tracks will be moved successively to their final positions.

During the whole of the works, normal train services have been maintained through Barking, with the exception of a planned diversion of services from St. Pancras, which are being terminated at East Ham for a limited period.



Approach to the L.T.E. dive-under, to carry westbound District trains under the Fenchurch Street-Southend tracks

Ripple Lane Marshalling Yard

The new marshalling yard at Ripple Lane has been planned to improve generally the working of freight traffic in the area by the provision of a modern mechanised hump yard with primary and secondary retarders.

This new yard, like the Barking reconstruction scheme, is a prerequisite for the electrification of the passenger services on the London, Tilbury and Southend Line and will replace five existing yards. They are the existing up and down yards at Ripple Lane, the up and down yards at Plaistow and the yard at Little Ilford. Movement of freight trains between these yards, which is unavoidable today, will no longer be necessary because fast through trains will run direct from Ripple Lane to their destinations with a high proportion of overnight transits.

The works extend for approximately two miles from Barking By-pass overbridge to Dagenham Dock Station. They comprise, firstly, a set of eight reception sidings with a capacity of 557 wagons with engine road, secondly, a hump line, fanning into 53 sorting sidings with a total capacity of 3,318 wagons and, finally, two each up and down departure sidings. There is also a group of secondary sorting sidings as well as the usual auxiliary tracks leading into and out of the yard.

Direct Access

A notable feature of the layout is the provision of direct access to the reception sidings for both up and down

Eastern approach to the Tilbury flyover, showing old and new Tanner Street footbridges

Reinforced concrete ramp giving road access to Ripple Lane marshalling yard from Renwick Road bridge

traffic. Similarly, direct exit facilities are provided for outgoing traffic from certain of the sidings in the main balloon as well as from the departure sidings.

Buildings

Structures include a new signalbox at the west end of the work. This will replace two on the existing layout. There will also be a hump cabin, control tower, and Yardmaster's office, with buildings for maintenance staff throughout the yard. Facilities will be provided for the inspection, maintenance, and fuelling of diesel locomotives, while the facilities for steam locomotives will include a 75-ft. dia. turntable, water column, and ashpit. A workshop for the repair of wagons will also be provided on the north side of the site.

Before work was started, the main lines ran through what is now the centre of the site, but on completion, the down main line will be to the north and the up main line to the south of the yard. At the present time, however, to give free access for the contractor's operations, both main lines are diverted to the south of the site.

In the course of the work, it was necessary to demolish Renwick Road bridge and reconstruct it to a greater overall length. The reconstructed bridge will be of three spans, the centre span being 130 ft. and the side spans 47 ft. each. The structure is entirely in concrete and the deck is of pre-stressed concrete construction. To allow the permanent works to be carried out, the roadway has been carried on a temporary Bailey bridge.

Nature of Ground

Ground conditions throughout the site are extremely poor. The trial bores indicated an average of 5 ft. of made-up ground, 14 ft. of peat, 8 ft. of ballast, all overlying an indefinite depth of sound clay. Because of this it was necessary to pile all structures, including the lighting columns. The total number of piles required is just over 1,000. Piles, in general, are Holmpress, a patented type in which a great increase in ground friction is obtained by driving a steel tube down the centre of the pile after the original sheath tube has been withdrawn and then adding further concrete down this tube during withdrawal.

Soil Research

Research into the properties of the soil indicated that, in general, it could not carry more than 12 ft. of fill, and it was eventually decided, after examining various other suggestions, to form the hump by excavating all materials down to ballast level and then building up again with selected materials to the required height. Tests have so far shown that settlement of the hump is of the order of 3 in. and the rate of settlement is decreasing rapidly.

The total quantities of excavation on the site are about 180,000 cu. yd. and total fill required is about 520,000 cu. yd. Sulphate content of the ground water is 147 parts/100,000 and all concrete work below ground level is, therefore, in metallurgical supersulphated cement.

The presence of three overhead electric power lines and a vast number of underground electric cables, coming from Barking power station, necessitated considerable diversions; one of the overhead lines has already been diverted to the north side of the site and the other overhead lines will be diverted clear of the site in the near future.

Underground cables are being completely re-arranged and will be carried under the tracks by means of two subways, one near Renwick Road bridge and another running under the centre of the main group of sidings. This latter subway is part of a combined structure, the other section serving as a culvert.

The contractor for the civil engineering work, including practically all the permanent way at Ripple Lane, is W. & C. French Limited. The track work at Barking is being carried out by the staff of the Chief Civil Engineer of the Eastern Region, Mr. A. K. Terris, under whose general direction and design the whole project is being carried out.

Sir William Halcrow & Partners are the consulting engineers for the Ripple Lane scheme.

ELECTRIFIED SINGLE LINE BETWEEN KENSINGTON OLYMPIA AND EARLS COURT.—As a result of alterations to the track layout between Kensington Olympia and Earls Court, London Transport District Line trains on the Olympia shuttle service are now running over an independent track. The down main line between Earls Court Junction and the south-west bay road at Olympia has been virtually separated from the other tracks and converted into an electrified single line, so that London Transport trains can work independently of Western Region (former West London and West London Extension Railways) traffic. This will improve the reliability of the shuttle service during exhibitions at Olympia and other events. The former double track now converges at a point some 1,300 ft. from Olympia Station and continues thither as a single line terminating in a new bay platform. The single line is now entirely under the control of London Transport West Kensington East signalbox, which also controls the electro-pneumatic points of the new junction between the single and double line sections. A hand-worked crossover has been installed between the new single line and the new Western Region northbound line at a point 500 ft. south of the bay platform at Olympia. It will be used to work locomotives or freight trains between the L.T.E. Lillie Bridge depot and the Western Region, or to work Western Region freight trains, when necessary, into the bay.

EASTERN REGION TRAIN ALTERATIONS.—As from March 3, the up "White Rose" of Eastern Region, leaving Leeds at 3.35 p.m., has become non-stop from Doncaster (depart 4.30 p.m.) to Kings Cross, arriving at 7.22 p.m., 28 min. earlier. To make the previous stops at Retford, Newark, Grantham, and Peterborough, and an additional stop at Huntingdon at 6.46 p.m., a new train now leaves Doncaster at 4.40 p.m., reaching Kings Cross at 7.59 p.m., while the 4.20 p.m. relief from Doncaster to Kings Cross on Fridays has been cancelled. The connecting 4.38 p.m. diesel from Lincoln to Grantham now starts at 4.58 p.m., so giving a 3-hr. service to London. New diesel services have resulted in certain other improvements.

RAILWAY NEWS SECTION

PERSONAL

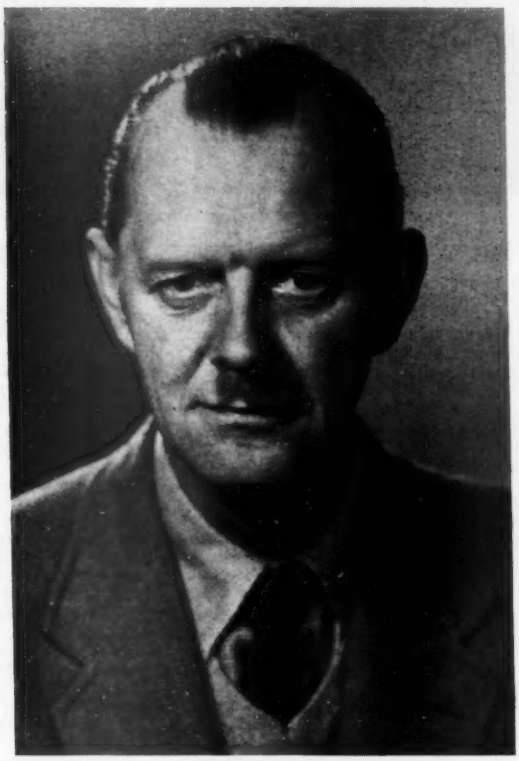
We regret to record the death, on March 13, of Mr. Richmond Temple, former adviser to British Railways. At the instigation of Sir Ralph Wedgwood, he directed the 1937-38 "Square Deal" campaign of the British railway companies. Mr. Temple was also closely connected with the hotel and tin industries. He was in his 65th year.

Assistant Commissioner for the Rhodesia Pavilion. He is a Past Chairman of the Public Relations Advisory Board and was a Director of the Rhodes Centenary exhibition. He has served on various committees connected with the political and cultural life of the country and is a Commissioner for Oaths.

Mr. George C. Tuvey has been appointed Sales Director of Zwicky Limited.

We regret to record the death on March 16, at the age of 83, of Mr. W. A. Agnew, former Chief Mechanical Engineer (Railways), London Passenger Transport Board. Mr. Agnew was born at Newton Stewart in 1874 and received his technical education in Edinburgh and Glasgow. He entered the service of the Metropolitan District Railway in 1904 and supervised the training of staff during the introduction of electric traction. In 1908 he became

Mr. J. H. Allen
Appointed Deputy General Manager, Rhodesia Railways



Mr. J. P. H. Stein
Appointed Chief Engineer, Iraqi State Railways

Mr. J. H. Allen, who as recorded in our February 14 issue, has been appointed Deputy General Manager of Rhodesia Railways, joined that system as a clerk in the General Manager's office in 1928. Mr. Allen was born at Claremont, South Africa, and spent five years with the South African Railways, before going to Rhodesia. He is a Bachelor of Economics (S.A.) and a member of the Institute of Transport. In 1946 he was appointed Rates Assistant, becoming Commercial Assistant in 1949, and Commercial Superintendent in May, 1950. In 1951 he was promoted to be Deputy Chief Superintendent of Transportation (Commercial). Following the decision to set up a Commercial Department Mr. Allen became the first Chief Commercial Manager in February, 1954. Two years later he returned to the General Manager's Office to fill the newly-created position of Principal Executive Officer (Movement). During the Johannesburg Empire Exhibition in 1936 Mr. Allen was in charge of the Rhodesia Railways stand and was also

Mr. J. P. H. Stein, B.Sc., A.M.I.Struct.E., who, as recorded in our February 28 issue, has been appointed Chief Engineer, Iraqi State Railways, is a graduate of Glasgow University. He joined the service of the Egyptian Government Irrigation Department in the Sudan as Assistant Director of Works in 1935. In 1939, he transferred his services to the Sudan Government Railways, becoming Assistant Chief Engineer in 1949. He was appointed Chief Engineer in 1952, from which position he retired under the Sudan Government Expatriate Officials Ordinance in 1955. The following year, he jointed the Iraqi State Railways in Baghdad as Superintendent Engineer. He became Acting Chief Engineer in 1957, the position in which he is now confirmed.

Mr. G. Venkateswara Iyer, I.C.S., Chairman, and Mr. K. N. Srinivasan, Chief Engineer, Madras Port Trust, who are at present in Washington for discussions with the World Bank, will be arriving in this country on March 29.

Mechanical Engineer to that company, and later to the Central London, City & South London, and London Electric Railways. In the 1921 "Underground" organisations, Mr. Agnew was appointed Mechanical Engineer (Railways) in the group, becoming Chief Mechanical Engineer in 1928. On the formation of the L.P.T.B. in July, 1933, he was designated Chief Mechanical Engineer (Railways) to the Board. He retired from this position in 1935. He was a member of the Institution of Mechanical Engineers and of the Institute of Transport, and was elected President of the Institution of Locomotive Engineers for 1931-32.

The late Mr. E. Rawdon Smith, former Public Relations Officer, London Passenger Board, left £51,866 (£49,836 net, duty paid £12,072).

Sir Joseph Napier, Bart., and Mr. Herbert C. B. Berens have resigned from the board of the Park Royal Vehicles Co. Ltd.

Mr. C. W. Powell

Appointed Operating Officer, Western Region, British Railways

Mr. A. E. Flaxman

Appointed Commercial Officer, Western Region, British Railways

Mr. R. Tildesley

Appointed Assistant Divisional Traffic Manager, L.M. Region

Mr. C. W. Powell, who, as recorded in our February 28 issue, has been appointed Operating Officer, Western Region, British Railways, began his career with the Great Western Railway in the office of the Superintendent of the Line in 1915. He served in the Inns of Court O.T.C., the Royal Flying Corps and the Royal Air Force in the latter part of the 1914-18 war, returning to his former department in March, 1919. Later that year Mr. Powell was transferred to the Swansea Division where he obtained station and divisional experience, before returning to headquarters in 1923. During the next 11 years he served in various sections of the Superintendent of the Line's office, being appointed Travelling Clerk in 1934. In 1935 he acted as Assistant to the Divisional Superintendents at Bristol and Paddington. He was appointed Chief Clerk to the Divisional Superintendent at Worcester in 936, and at Bristol in 1938. He became Assistant Divisional Superintendent, London, in 1940. In 1942 Mr. Powell was promoted to be New Works Assistant to the Superintendent of the Line, in which capacity he was responsible for many war-time New Works projects. In 1945 he became Operating Assistant. In 1946 he became Divisional Superintendent, Swansea, and, the following year, Divisional Superintendent, London. This position was re-designated District Operating Superintendent in March, 1950, although he continued to be responsible for passenger commercial matters. He returned to Paddington as Assistant Operating Superintendent in 1951, the position he now vacates. Mr. Powell holds the rank of Major in the Engineer & Railway Staff Corps, R.E. (T.A.) and is a member of the Institute of Transport. The position to which he is now appointed has been created recently in the Western Region traffic organisation.

Mr. A. E. Flaxman, who, as recorded in our February 28 issue, has been appointed Commercial Officer, Western Region, British Railways, joined the Great Western Railway in 1917 in the office of the Chief Goods Manager at Paddington. In 1922 he transferred to the Engineer's Department and later to the office of the General Manager, returning to the Chief Goods Manager's Department in 1938. Mr. Flaxman became Chief Clerk at South Lambeth Goods Depot in 1942 and, the following year, was appointed Goods Agent at Oxford. He returned to London in 1944 as Cartage Superintendent, Paddington. He was appointed Assistant Goods Agent at Paddington in 1945, and Goods Agent at South Lambeth in 1946. He became Assistant District Goods Manager at Birmingham in 1947 and at Paddington in the following year. He was appointed Goods Agent, Paddington, in 1949, and District Goods Superintendent, Reading, in

Mr. F. M. Wright

Appointed District Commercial Officer, Kings Cross, Eastern Region

Mr. I. R. Gamble

Appointed District Commercial Officer, Peterborough, Eastern Region

Mr. A. E. Hoare

Appointed Mechanical Engineering Assistant, Southern Region

1950. He later became Acting District Goods Superintendent, London, and District Commercial Superintendent, Worcester. He was then appointed Productivity Assistant to the Commercial Superintendent at Paddington. In March, 1954, he was appointed Terminals & Cartage Assistant to the Chief Commercial Manager, which post he now vacates. Mr. Flaxman is an Associate Member of the Institute of Transport and holds the "Brunel" medal of the London School of Economics. The position to which he is now appointed has been created recently in the Western Region traffic organisation.

Mr. Richard Tildesley, M.I.Loco.E., M.Inst.T., who, as recorded in our January 31 issue, has been appointed Assistant Divisional Traffic Manager, London, British Railways, London Midland Region, was educated at Stand Grammar School, Whitefield, Manchester, and joined the L.M.S.R. in 1929 as a premium apprentice in the Chief Mechanical Engineer's Department at Horwich. Five years later he joined the Motive Power Superintendent's Department and, after further experience at various depots, was appointed Head Office Inspector at Euston in 1937. Mr. Tildesley became Assistant District Locomotive Superintendent at Bescot in 1939 and returned to Euston in 1946 as an Assistant in the Motive Power Department at headquarters. Mr. Tildesley became District Motive Power Superintendent, Bletchley, in 1950 and, two years later, was appointed to a similar position at Rugby. He became Assistant (Utilisation) to the Motive Power Superintendent in 1956, the position he now leaves to take up his new appointment.

Mr. F. M. Wright, who, as recorded in our February 21 issue, has been appointed District Commercial Officer, Kings Cross, Eastern Region, British Railways, was educated at Rutherford College, Newcastle-upon-Tyne. He joined the former London & North Eastern Railway in 1933 and obtained experience in the Commercial, Operating and Docks Departments in the North Eastern Area. On the outbreak of war he joined the Royal Engineers and attained the rank of Lieutenant-Colonel. He was made an M.B.E. for services in connection with the movement of stores from India to Assam and Burma. After demobilisation, he was appointed a Traffic Apprentice and, on completion of his course, became Assistant Yardmaster, Annesley. In 1951 he was made Traffic Agent, Consett, and, two years later, moved to Darlington as Goods Agent & Yardmaster. In 1954 he became Assistant District Commercial Manager, York and the following year he moved to a similar position at Lincoln. In 1957 he became Acting District Commercial Manager, Peterborough, the position he relinquished on taking up his appointment at Kings Cross.

Mr. I. R. Gamble, who, as recorded in our February 21 issue, has been appointed District Commercial Officer, Peterborough, Eastern Region, British Railways, joined the staff of the Midland & Great Northern Joint Committee in 1922 in the Traffic Manager's Office, King's Lynn. Between 1923 and 1929 he gained experience at various stations. In 1929 he returned to the Traffic Manager's Office in the Rates Department. In 1936, on the absorption of the M. & G.N. by the London & North Eastern Railway, Mr. Gamble was transferred to the L.N.E.R. Goods Manager's Rates Department. The following year he joined the Advertising Manager's Department. In 1938 he was appointed Assistant Industrial Agent in the Chief General Manager's Office. He was made Assistant District Goods Manager (London Suburban) in 1941. In 1946, he became Assistant District Goods & Passenger Manager, Peterborough. In 1948 he returned to London as Assistant District Passenger Manager, the position which he now vacates.

Mr. A. E. Hoare, M.I.Mech.E., M.I.Loco.E., M.Inst.T., who, as recorded in our February 28 issue, was recently appointed Mechanical Engineering Assistant in the Chief Mechanical & Electrical Engineer's Department, Southern Region, British Railways, joined the Southern Railway at Eastleigh Works as a pupil of Mr. R. W. Urie in 1923. In 1926 he entered the Locomotive Running Department, and obtained running experience at Bournemouth, Yeovil, and in the Isle of Wight. He was appointed Locomotive Foreman in charge at Andover Junction in May, 1929; at Basingstoke in September, 1929; at Fratton in 1932, and at Bournemouth in 1936. In 1938 Mr. Hoare was made Running Shed Superintendent for the West of England, with headquarters at Exmouth Junction. In 1942 he became Assistant Western Divisional Locomotive Running Superintendent at Woking. In 1945 he was appointed Assistant to Superintendent of Motive Power, and became Assistant Superintendent of Motive Power in 1947, an appointment re-designated Assistant Motive Power Superintendent in 1948.

Mr. J. C. F. Cameron, Assistant to District Engineer, Planning & Work Study, Civil Engineer's Department, Purley, Southern Region, British Railways, has been appointed Work Study Assistant in the Manpower Adviser's Department of the General Staff of the British Transport Commission. He joined the Southern Region as a draughtsman in the District Engineer's Office at Eastleigh, in 1948. He spent two years as a graduate civil engineer in the Chief Civil Engineer's head office at Waterloo, before joining that department's team of Work Study assistants. In 1956 he became Assistant (Planning & Work Study) to the District Engineer, London (Eastern) District at Purley. Mr. Cameron is an Associate Member of the Institution of Civil Engineers and a Graduate of the Institute of Transport.

Mr. A. G. Bonnick, Assistant, Stores Department, Swindon, Western Region, British Railways, has been appointed Assistant in the Contracts Department of the Central Services of the British Transport Commission. He entered the service of the Great Western Railway in 1918 in the Goods Department at Paddington. He was transferred to the Contract Section of the Secretary's Office in 1922, being appointed Head of that Section in 1945. Upon nationalisation, and after a short period in the Office of the Chief Regional Officer, he was transferred to the Stores Department at Swindon, to take charge of the Contracts Section and was appointed Assistant, Special Duties, in 1957.

Captain R. A. H. Lord, Master of m.v. *Cambria* of the London Midland Region, British Railways, has been appointed District Marine Manager & Harbourmaster, Holyhead.

We regret to record the death on March 15, at the age of 75, of Mr. C. Fawcett, formerly Engineer-in-Charge, Locomotive Section, of the Railway Department of Messrs. Rendel Palmer & Tritton.

Consequent on the amalgamation of the Commercial and Operating & Motive Power Departments, British Railways Central Staff, British Transport Commission, into a single department under a Chief Traffic Officer (Mr. Frank Grundy), the following appointments have been made:—

Mr. A. A. Harrison to be Chief Freight Officer, Traffic Department. Mr. Harrison hitherto has been Chief Charges Officer, Commercial Department, British Railways Central Staff, which appointment is now merged with that of Chief Freight Officer.

Mr. E. A. W. Dickson, formerly Chief Passenger Officer, Commercial Department, British Railways Central Staff, to be Chief Passenger Officer, Traffic Department.

Mr. H. F. Pallant, formerly Freight Officer, Commercial Department, British Railways Central Staff, to be Chief Operating Officer, Traffic Department, covering Operating & Motive Power.

Mr. R. K. Mitra, Chairman, and Mr. T. M. Malkani, Chief Engineer, Commissioners for the Port of Calcutta, recently paid a brief visit to this country en route to Washington. They will return to the U.K. on April 2, remaining until April 6, when they will visit the Continent.

Mr. D. I. Grant, Executive Assistant, Canadian National Railways, has been appointed Vice-President, Associated Services, of that system. Mr. R. H. Tarr, Secretary, Canadian National Railways, has been appointed Vice-President and Secretary of that railway.

We regret to record the death on March 17, at the age of 85, of Mr. Thomas Turl, formerly of the Sudan Government Railways.

We regret to record the death on March 14 of Mr. A. F. Chase, M.B.E., former Staff Officer, Vehicle Regulation and Taxation Division, Ministry of Transport.

We regret to record the death on March 15, at the age of 78, of Mr. J. A. Brown, former director of Allied Ironfounders Limited.

Mr. Edgar Fryer has been re-elected, for the eleventh year, Chairman of the Transport & General Workers' Union.

Mr. I. R. Kydd, Assistant Chief Engineer, United Automobile Services Limited, Darlington, has been appointed Chief Engineer, Lincolnshire Road Car Co. Ltd.

Mr. S. A. Comley has been appointed London Area Manager, Tool Division, of Uddeholm, Limited. Mr. A. G. S. Shaw becomes the company's tool steel representative in Birmingham.

We regret to record the death, at the age of 76, of Major H. E. Crawfurd. He was a member of the Royal Commission on Transport from 1928 to 1931, and a former vice-president of the British Road Transport Federation. He was Chairman of the National Federation of Scrap Iron and Steel Merchants from 1939 to 1953.

We regret to record the death on March 8, at the age of 82, of Lt.-Colonel Reginald Tristram Harper, O.B.E. In 1919 Colonel Harper was appointed Assistant Secretary to the Buenos Aires Great Southern Railway Company, becoming Secretary in 1921. He later became a director of the Buenos Aires Great Southern Railway Company and also of the Buenos Aires Great Western Railway Company.

NEW EQUIPMENT AND PROCESSES

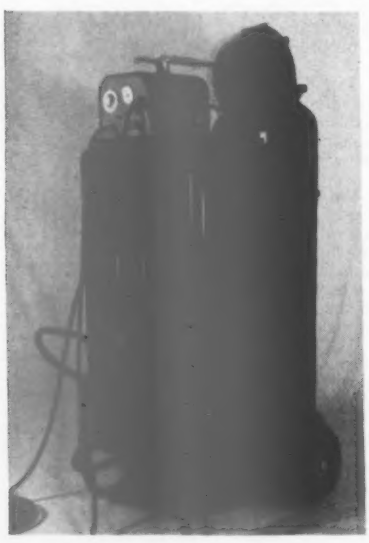
Automatic Loading Equipment

THREE machines have recently been added to the Lodematic range of loading equipment. With a width of 24 in., Lodematic automatic loaders, which can have lifts of 6-10 ft., are pushed like a barrow, alongside the lorry or stack. They are powered by an electric motor from a mains supply or small petrol engine. One feature is an automatic lift counting device.

Items such as tea chests, fish and fruit boxes, bales, bins and sacks, can be quickly handled in warehouses and goods depots; other applications, of the petrol model, include lifting, railway sleepers from track to wagon level.

The platform lifts automatically on receiving the load; when transferred on to a lorry or stack, it descends.

Manual control is available instead of the automatic platform, and all models can be stopped at any intermediate height.



The Mk.I model of the automatic loader is stated to be easily loaded on to a lorry for inter-depot use, and be pushed as easily as the average porter's truck. Loads up to 2½ cwt. can be lifted.

Further details can be obtained from the manufacturer, Lodematic Limited, Clitheroe, Lancs.

Tungsten Carbide Masonry Drills

A RANGE of high quality masonry drills intended to sell as moderate prices is now available. Railway applications for the drills, which vary from ¼ in. to 1 in. dia., include drilling of concrete sleepers, maintenance and construction of tunnels, and other constructional work.

The drills are tungsten carbide tipped. Tests, it is stated, have shown that these products have a longer life than other comparative products. There are claimed to be less clogging, require less pressure and to have a more positive drilling action. They are suitable for use with hand, breast or slow-speed electric drills.

The price ranges from 7s. 6d. for a No. 3 to 42s. for a No. 30L drill. Further details may be obtained from the manufacturer, Stanley Works, (Great Britain) Limited, Rutland Road, Sheffield 8.

Shielded Inert Gas Welding Equipment

A SEMI-AUTOMATIC equipment for shielded inert gas metal-arc welding, the Lynx, includes the following features: self-contained welding rectifier which has control of the welding current, wire feed, gas glow and water cooling services required for the process; portable wire feed and control unit which the welder can readily re-position around large fabrications, and which can be parted into two assemblies for carrying over longer distances; motorised remote wire-feed speed control; and choice of water-cooled or air-cooled guns which are readily interchangeable without modification of the equipment.

The welding rectifier consists essentially of a combined transformer and selenium plate metal rectifier. The set includes a built-in control panel containing the wire-feed motor control circuits, operating relays, gas solenoid valves, etc. The maximum voltage to earth at any point in the control panel is 55, operating power being supplied from a centre-tapped 110-V. transformer. A high-speed welding current contactor is included, also provision for mounting two gas cylinders at the back of the machine.

The machine can be used with a water-cooled gun for currents up to 600 A., or with an air-cooled gun for currents up to 300 A. (250 A. continuous). The air-cooled gun enables the equipment to be used on sites where water-cooling is difficult to arrange. The water-cooled gun incorporates a water-supply failure device.

The equipment is designed for welding aluminium and its alloys, copper and its alloys, corrosion-resisting steels, mild steel, and so on. High welding speeds can be obtained; for example, in aluminium, using $\frac{1}{16}$-in. wire at a current of 245 A., a ¼-in. horizontal-vertical fillet weld can be deposited at an overall welding speed of 18 in. per min. It can be used for welding all metals greater than ⅛-in. thick. Railway applications include welding of heavy alloy underframes for rolling stock, and diesel engine bed plates.

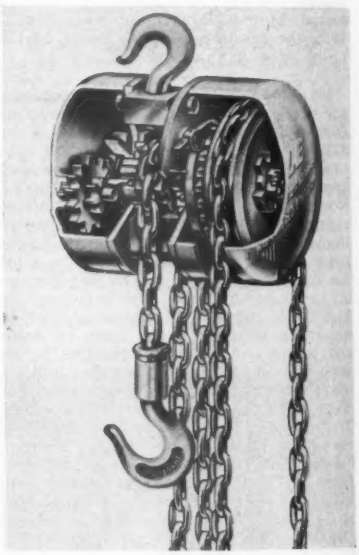
The basic price is approximately £1,100. Delivery is ex stock. Further details can be obtained from British Oxygen Gases Limited, Spenser House, St. James's Place, London, S.W.1.

Lightweight Hoist

A PORTABLE lightweight hoist, which weighs 33 lb. and has a capacity of ½ ton, has been developed. The hoist makes extensive use of alloy materials and "Grade 8a" load chain. It is fitted with detachable aluminium covers.

The hoist has drop-forged steel hooks which are designed to open slowly, without breaking, in the event of severe overloading. This provides warning for the operator before any other part of the hoist is damaged. Both hooks swivel freely.

The load sheave, an aluminium-bronze casting with five machined chain pockets,



is supported on both sides by a single-row ball bearing of the double-shielded type. The brake is of the Weston screw and disc self-actuating type.

Gears and pinions, machined from alloy steel which is heat-treated to provide strength and resistance against wear, are arranged in balanced gear construction to ensure even loading. All gears are splined to their spindles.

The minimum distance between the hooks is 11½ in.; with the standard length of load chain, the maximum distance between hooks is 10 ft. Greater lengths of chain may be obtained if required.

Further details are obtainable from the Yale & Towne Manufacturing Company, Materials Handling Division, Wednesfield, Staffs.

English Electric Co. Ltd.

Combating inflation by increased efficiency

Sir George Nelson, Bt., Chairman, presiding at the 39th annual general meeting held on March 13 in London, stated that the consolidated results for the year once again showed an improved position with the balance on trading account up by £765,000 to £10,233,840. After depreciation, loan interest, and income from trade investments, the profit before taxation was higher by £181,000 at £6,916,989.

After taxation and after transferring taxation relief to reserve, the profit applicable to the company in the consolidated account was £2,951,285 compared with £2,911,812 a year ago; an increase of £40,000. The board recommended a final dividend on the ordinary stock of 10 per cent less tax, making 14 per cent for the year. Orders outstanding at the end of the year, for the group as a whole, exceeded £250 million.

Turning to export, Sir George Nelson said he had mentioned last year that the company had received orders from 137 different countries. He could say again this year that orders had been obtained from just as many parts of the world. The very wide range of products covered by sales, from their large traditional electrical products at one end of the scale to small electric motors at the other, with aeroplanes to help swell turnover, had undoubtedly contributed to the successful year's working in the overseas territories.

Production Efficiency

Referring to production efficiency, he stated that the company had made great efforts, but it must do even more. The results were not limited to the company, for electricity served the whole economy and many industries. The machines for modern power stations were, as a result of extensive research and development, progressively larger and more efficient than in earlier years. He took the opportunity to announce the recent receipt of an order from the Central Electricity Generating Board for two 275,000-kW. turbo generators for installation in their projected new Blyth "B" generating station. The design submitted by English Electric had been selected as the best on price, efficiency and technical excellence.

The general review of the year's work, in previous years included in the Chairman's speech, was this year published separately in a brochure entitled "Activities 1957-58."

The review states that the year 1957 showed substantial progress in the volume of both sales and production of the company's traditional products, which were again records.

In 1957 the value of the orders placed from all over the world for electric and diesel electric railway traction equipment was an all-time record. The company had railway equipment in operation in 56 countries throughout the world, and while it was playing its part in the modernisation of British Railways, some 40 per cent of current production goes overseas, much of this being in the form of repeat orders, a gratifying indication of customers' satisfaction with British products.

Running in regular service is the world's most powerful diesel electric locomotive, the 3,300 h.p. Deltic, designed and built wholly by the company as a private venture. It was used by the British Transport Commission to haul between Glasgow and Manchester the "Maple Leaf" special train conveying the Canadian Government Trade Mission.

The history of the English Electric Group in railway traction goes back to the very beginning of railways because the group now includes both the Vulcan Foundry Limited and Robert Stephenson & Hawthorns Limited, who since their foundation in 1830 and 1823 respectively have been leaders in this field. The three companies, English Electric, Vulcan and Stephenson & Hawthorns, now form the strongest locomotive producing group in this country.

The report and accounts were adopted.

The Vulcan Foundry Limited

Sir George H. Nelson's review

The ninety-fifth annual general meeting of The Vulcan Foundry Limited was held in London on March 13. The following is an extract from the statement by the Chairman, Sir George H. Nelson, Bt., LL.D., F.C.G.I., D.I.C., M.I.Mech.E., M.I.E.E.:—

When The Vulcan Foundry and Robert Stephenson & Hawthorns were purchased by The English Electric Company, three years ago, it was realised that a lean period was inevitable during the programme of modernisation and reorganisation which involved conversion from the manufacture of steam locomotives to that of diesel-electric and electric locomotives and of English Electric diesel engines. In addition, the full utilisation of the increased workshop capacity has been prejudiced by the fact that the programme for the modernisation of British Railways has not proceeded as fast as originally anticipated, owing to the country's need to cut down capital expenditure. I do not wish to exaggerate these difficulties, but have to mention them in relation to the disappointing results for the year, which were caused by failure to achieve a turnover sufficiently large to absorb the overhead expenses. I am satisfied, however, that the full benefits of the modernised workshops and reorganised systems of manufacture will be felt during 1958. The directors have decided to pay the dividend on the 5 per cent preference stock, but the trading results for 1957 preclude the payment of a dividend on the ordinary stock, the whole of which is owned by The English Electric Co. Ltd.

Accounts

The group trading results show a loss of £286,497 after charging depreciation of £76,408. The English Electric Co. Ltd., has made subvention payments totalling £335,000 to the Vulcan Foundry Limited and Robert Stephenson & Hawthorns Limited. The provision for taxation amounts to £2,000, and £20,000 has been transferred to general reserve in respect of taxation on the excess of capital allowances over depreciation, leaving a credit balance of £26,503. After adding the balance brought forward from last year and deducting dividends paid and accrued on the 5 per cent preference stock there is a balance of £114,127 which the directors recommend should be carried forward.

There was a further substantial increase in fixed assets during the year of £240,029 representing the continued re-equipment and extension of our facilities.

Production

At Newton-le-Willows early in June, I had the pleasure of handing over to Lord Rusholme, a Member of the British Transport Commission and Chairman of the London Midland Area Board of British Railways, the first main-line locomotive to be delivered under the British Railways modernisation scheme. This was a "Type I" 1,000-h.p. diesel-electric locomotive, the first of an order for 20 of this type; our deliveries were so well advanced that 15 of these locomotives had been completed before any other manufacturer delivered a locomotive against the modernisation scheme orders. At the end of the year, the first of an order for 10 "Type 4" 2,000-h.p. diesel-electric locomotives for British Railways was also nearing completion.

Vulcan built during 1957 the mechanical parts for electric locomotives for South Africa and India, while mechanical parts for diesel-electric locomotives have been produced by Vulcan for the Rhodesia Railways, and by Stephenson's at Darlington for Malaya.

Future Prospects

The prospects for 1958 are encouraging, based on an order book which includes several repeat orders placed with the English Electric Group, among others by the Spanish, Malayan, and South African Railways. I should like to mention particularly the orders we have received for "5E" type electric locomotives for the South African Railways. In addition to 60 of these locomotives already supplied, orders have been received subsequently for a further 100, and the mechanical parts for these will all be produced, and the locomotives erected, at Newton-le-Willows.

Robert Stephenson & Hawthorns Limited

Turning to Stephenson's Works at Darlington and Newcastle, here again the work of re-organisation and re-equipment has continued, with a similar effect on the Company's earning capacity. Diesel-electric locomotive mechanical parts are now being produced at Darlington, while the Newcastle Works have contributed to the versatility of the group's traction activities through their production of diesel-mechanical shunting locomotives—including a new "austerity" type of 107-h.p. locomotive designed for industrial use, and known as the "Husky"—and battery-operated mine locomotives as well as their traditional business of industrial steam shunting locomotives.

The report and accounts were adopted.

SIMMONDS AEROCESSORIES LIMITED AT FACTORY EQUIPMENT EXHIBITION.—Simmonds Aerocessories Limited of Treforest, Glamorgan, will display a range of fasteners, nuts, and tools at the Factory Equipment Exhibition at Earls Court on April 14-19. Exhibits will include Spire spring steel fasteners; and self-locking nuts such as Nyloc, Fibre, and Pinnacle, in a full range of threads and sizes. Four new Surform hand tools will be shown, with the original Surform standard plane and file. The new tools are a fine-cut file, a half-round file, a block plane, and a convex plane. Each incorporates the distinctive Surform blade, set with 500 angled teeth and pierced with 500 corresponding perforations to prevent clogging and heat build-up.

West of India Portuguese Guaranteed Railway Co. Ltd.

The seventy-sixth annual general meeting of the West of India Portuguese Guaranteed Railway Co. Ltd. was held on January 8. The Chairman, Sir William Sharpe, stated, in the course of his speech, that the total net earnings for the year ended March 31, 1957, were £118,630, compared with £51,689 in the previous year. Gross earnings of the railway had doubled, while the total volume of overseas traffic through the port had increased from 1,677,467 tons in 1955-56 to 2,175,650 tons in 1956-57. This increase was chiefly due to the greater quantity of ore exported.

Dealing with the current year's financial prospects, he observed that the estimated net earnings amounted to £181,000. He also informed the stockholders that the classification of the company as an overseas trading corporation for the purpose of the Finance Act, 1957, had been accepted by the Inland Revenue authorities. This would appreciably reduce the company's liability to taxation in the United Kingdom.

Considerable developments are planned and under execution at Mormugao. These include the work of extending and mechanising No. 6 Berth, which has been started; and a new shipyard, which is being established and in which the company is a shareholder. A water barge has been commissioned and a new pilot launch is being built. The Government also is arranging for a hydrographic survey of the harbour and its approaches, to assess the extent to which facilities for deeper draft ships could be provided.

New Workshops

New workshops are in course of construction for the company, and a new electric power house is being built by private enterprise; it will supply the company with ample electric power to meet increasing requirements. One of the harbour transit sheds is being shifted to a site nearer the quays, with convenient working platforms and other facilities. Orders have been placed for 50 additional bogie ore-carrying wagons and two diesel shunting engines. Considerable arrears of renewals and repairs have been overtaken in respect of the various assets for which repair facilities were inadequate when the company resumed operation of the railway and harbour in 1956.

Sir William Sharpe expressed the stockholders' appreciation of the ability and leadership of Colonel C. G. Blackford, the General Manager in Goa who, he said, was the inspiration of the success achieved in overcoming the difficulties with which the company had been faced in 1956. He also paid a tribute to the Portuguese Government, for its unfailing co-operation and assistance in overcoming initial difficulties at the time of the take-over by the company.

The report and accounts were adopted.

B.R.S. Teleprinter Terminal Opened

Mr. C. Barrington, a member of the British Road Services Board of Management, opened the British Road Services London teleprinter centre in City Road, London, E.C.1, on March 12. The new centre handles messages by a press-button tape transfer system—the first to be engineered by the British Post Office. All messages entering the centre are routed to other message centres in Glasgow and throughout England and Wales, or to destinations in London. Demands for engaged routes are registered by the automatic apparatus and transmission takes place, again automatically, as soon as the route becomes free. The new centre has brought about a considerable speed-up in message handling, created increased message capacity, and achieved a saving in operating costs of £7,000 a year.

System Structure

Thirty principal message centres strategically placed throughout the country form the basis of the system and their function is to canalise messages to and from local offices and depots through the main long-distance teleprinter channels. These centres are linked together by duplex tape relay circuits. Duplex working permits the transmission of messages simultaneously in both directions over a single channel: tape relay is a method of teleprinter communication employing punched paper tape and automatic transmitters which obviate waiting for through connections and ensures maximum economic use of long-distance channels.

Control over the whole network is exercised from London and only two main tape transfer centres are used. These are in London serving England, Wales and Glasgow; and in Glasgow serving Scotland. Every message centre is equipped with at least one telex machine which can be used for both inland and international calls and also to communicate with other centres if the private circuits go out of order. Documentary checks are applied to guard against message loss but occasional delays due to messages going temporarily astray do occur.

Secondary Feeder Networks

The majority of message centres are equipped with a local secondary network so that messages may be exchanged in the most efficient way with B.R.S. offices and depots and with customers in the area served by the local network. Various methods are employed for this purpose, including private wire teleprinter, international telex, facsimile, telephone, pneumatic tube, and hand delivery. Messages are transferred between the main and secondary networks by automatic transmitters in London, Glasgow, Birmingham, Manchester, Liverpool, Leeds, Newcastle, Cardiff, Bristol and Nottingham and by manual reprinting elsewhere.

Until January 18, 1957, the London centre was housed in the basement of a nearby building. The network consisted of manually switched simplex circuits and a limited conventional tape relay system. Conventional tape relay requires the physical transfer of tape from fixed receiving machines to fixed destination transmitters.

The decision to adopt full tape relay working was taken in June, 1956, and planning was put in hand. The general design and layout of machines in the new centre was arrived at by careful application of work study methods. As far as possible all message handling operations are within easy reach and pneumatic tube or electronic means are at hand where it is necessary to send a message across the office. When faults occur on private wires, diversions over the G.P.O. public telex network are achieved without departing from standard drill at the main operating positions.

The complete press-button teleprinter system was designed to B.R.S. requirements and supplied and installed by the G.P.O. Facsimile equipment was supplied by Creed & C. Ltd.; the pneumatic tube installation was by Lamson Engineering Co. Ltd.; and the internal loud-speaking telephone system was supplied by Telephone Rentals Limited.

Tape transfer room in the British Road Services new teleprinter terminal

SIMMS MOTOR UNITS, LIMITED, MANCHESTER BRANCH.—Pursuing a policy of expansion and improvement of their provincial branches, Simms Motor Units Limited of East Finchley, London, N.2, have begun extensive alterations to its Manchester Branch in Chester Road, Stretford. These will take some time to complete, but arrangements have been made to ensure normal service.

Re-design at Caledonian Hotel, Edinburgh

View of part of the restored original ceiling, showing one of the four chandeliers and part of the "Golden Eagle" mural

The Dining Room and Lounge of the Caledonian Hotel, Edinburgh, have been re-designed and re-opened. The alteration, which stemmed from the designs of Mr. Robert Nicholson, F.S.I.A., and Mr. Roger Nicholson, A.R.C.A., Consulting Designers for the work to the British Transport Hotels & Catering Services, aimed at the creation of good proportions and an atmosphere of spaciousness.

One of the largest murals to be executed for many years runs round the walls of the Dining Room. Incorporating a realistic design of golden eagles flying against a cloudy sky, the mural is 230 ft. × 20 ft. It was painted on canvas sections, precisely measured to fit together when completed, and to fill exactly the available wall space. Altogether, some 4,000 sq. ft. of canvas was used. The mural was painted by Roger Nicholson, assisted by Jehan Dahly and Gordon Davies.

Original Ceiling Uncovered

A false ceiling added during the 30's was removed to reveal the original ceiling of the room. This, decorated with roundels and attractive plaster work, had remained almost unblemished. It has been restored in pale blue and white, and further decorated with gilded roundels and golden eagles to carry the effect of the mural upward and across the ceiling and to create an impression of light and space.

Light is given from four brass chandeliers, enamelled deep blue and pale yellow. Each contains 37 electric lamps and measures about 14 ft. × 8 ft. Wall mirrors engraved with a floral motif enhance the room's light. Engraving was carried out by a new process ensuring faithful reproduction of the artist's design. Similar treatment has been given to the glass door panels. Engraved designs are the work of Mr. John Ward.

The floral theme is continued in the carpets, which have a tree-and-blossom motive. Bold shades of green and blue have been used.

Chairs are upholstered in a striped fabric of deep blue and black. Servers' and head waiter's desks are painted white with restrained gold lining. Curtains striped in yellow and white further emphasise the effect of light and space. Their designer was Miss M. Leischner of the Royal College of Art.

Specially-Designed Wallpaper

A specially-designed wallpaper has been used in the Lounge. Here, a pink-and-blue ribbon makes a complete design for each panel. The floral motif in greys and grey-greens is incorporated.

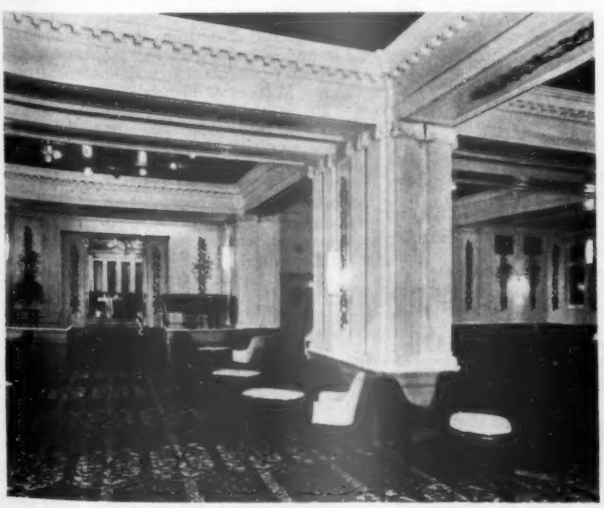
Four chandeliers of basically similar design to those in the Dining Room consist of a circle of flowering trumpets with twining foliage. Enamelled with pale blue stripes, each contains 12 electric lights.

Upholstery of the Lounge chairs has been carried out with deep red and black-red striped material. Tables are topped with black plastic which a brass edge and red mahogany interspaced-edging add colour accents. The carpet, of similar design to that in the Dining Room, is red, orange and khaki.

The following is a list of contractors:

Curtain material: Conran Fabrics Limited, 6 Cadogan Lane, London, S.W.1.
Curtain making and carpet laying: R. Frost & Son, 67-77 Shandwick Place, Edinburgh.
Carpeting: The Carpet Manufacturing Co. Ltd., Kidderminster.
Furniture: L.M. Furniture Limited, Wallingford.
Wallpapers: Lightbrown Aspinal Limited.
Decorating: Holland, Hannen & Cubitts Limited, 238 Grays Inn Road, London, W.C.1; Thomas Bonnar & Son, 58 George Street, Edinburgh.
General Contractors: Robert Hastie, 34 Torphichen Street, Edinburgh.
Light fittings: *Lounge*—Robert White & Son, 57 Neal Street, London, W.C.2; *Dining Room*—Contract Metals, Cambridge.
Mirrors: City Glass Company, Glasgow.

Also at the Caledonian Hotel some 30



(Left): The re-designed Lounge, showing in background, entrance to the Dining Room, which is shown in greater detail (right)

additional private bathrooms are being provided, and the former De Guise Restaurant has been re-designed and re-named "Le Postillon." Other work on hand, or projected, includes the new Grill Room and "La Caravelle" Restaurant at the North British Hotel at Edinburgh—this hotel has also been provided with 43 additional private bathrooms, the forerunners of more to come.

Other Work in Scottish Region

At Gleneagles Hotel a new American Bar and drawing-room in the French style —La Potiniere—have been provided and many improvements to the grounds and golf courses carried out. Turnberry also has a new American Bar. The new Arran golf course has been completed.

The re-modelling of the ground floor of the Station Hotel, Inverness, will be completed by April. The work includes new kitchens and service premises with a new small Dining Room to release the existing dining room for banquets; a new American Bar; complete re-decoration and re-furnishing throughout; and the provision of some 15 more private bathrooms.

There is a new American Bar at Glasgow Central, and an entirely new banqueting suite called "The Kintyre" is under construction. The dining room and other public rooms have been re-decorated, and work on the new "La Fourchette" room to replace the old Quick Lunch Bar is nearly complete.

Plans for the Station Hotel, Aberdeen, provide for a considerable extension of the dining room and banqueting accommodation.

Amenities at Stations

Following the success of the new Caledonia Bar at Glasgow Central Station, similar amenities are planned at other large Scottish terminal stations.

Perth tea room has been extended to cater for the increasing car-sleeper traffic between the South and the Highlands; refreshment rooms provided at Dundee West and Dundee Tay Bridge; a small cafeteria has been introduced at Dumfries, and plans are in hand to modernise Stirling and Ballater refreshment rooms. A new cafeteria, bar, and refreshment room—equipped with a Bacon and Egg unit—has been opened at Inverness.

Mansion House Association on Transport Annual Luncheon

The annual luncheon of the Mansion House Association on Transport (Inc.) was held at the Connaught Rooms, London, W.C.2, on March 14. Mr. M. F. Barnard, President of the Association, who was in the chair, proposed the loyal toast.

Mr. J. W. Bannard, Chairman of Council of the Association, proposed the toast of the Ministry of Transport & Civil Aviation. Some of the points made in his speech are the subject of editorial comment on another page.

He pointed out that the M.H.A., founded 70 years ago, and by far the oldest of the traders' transport associations, was in close contact with other bodies, especially the Traders Co-ordinating Committee and the Traders Traffic Conference, and stressed the usefulness of this luncheon as an opportunity for entertaining a Minister of the Crown, Ministerial representatives, transport providers, and others who were connected with transport in various forms.

Welcoming Sir Gilmour Jenkins, Permanent Secretary to the Ministry of Transport & Civil Aviation, Mr. Bannard thanked him for deputising at short notice for Mr. David Renton, M.P.

Sir Gilmour Jenkins, replying, stated that the Ministry of Transport & Civil Aviation observed that industry tended sometimes to plan without consideration of transport logistics. The only licensing restrictions now existing for transport were those which had stood the test of time, and were 25 years old. He referred also to the completion, next year, of the London - Birmingham motorway.

Mr. J. W. Phillipson, Vice-President of the Association, proposed the health of the guests.

Major-General G. N. Russell, Chairman & General Manager of British Road Services, replying, said that British Railways would not be timid or conservative in their commercial policy.

His recent visit to the U.S.A. had shown him that this country had much to show the world in transport techniques and developments; the U.S.A. did not lead the way as regards basic transport methods. There must be no delay, however, on the part of British transport operators, in using new methods and devices.

Others present included :—

Messrs. E. W. Arkle, L. G. Burleigh, A. L. Castleman, H. R. Caulfield Giles, R. Gresham Cooke, G. Dow, G. Wynne Davies, K. W. C. Grand, F. Grundy, S. C. Harvey, S. G. Hearn, T. H. Hollingsworth, C. P. Hopkins, T. E. Jackson, R. E. L. Lawrence, G. M. Leach, A. J. Malacrida, F. C. Margetts, R. Morton Mitchell, A. C. B. Pickford, H. H. Phillips, J. C. Poole, S. E. Raymond, H. B. Taylor, W. H. Vine.

Contracts and Tenders

National diesel engines for Hunslet shunting locomotives

The National Gas & Oil Engine Co. Ltd., has received an order from the Hunslet Engine Co. Ltd., for four NM6T vertical diesel engines for Hunslet diesel-hydraulic shunting locomotives. They develop 270 b.h.p. at 1,500 r.p.m.

The General Electric Co. Ltd., has received an order from the Eastern Region, British Railways, for 8,960 convector-type heaters to be installed in new multiple-unit rolling stock for the forthcoming 25 kV., 50 cycle, single-phase electrifications. The heaters are of 500 W. rating and are required to operate on a nominal 240 V. supply derived from the motor coach, transformer, with a possible maximum of 315 V.

British Transport Waterways have placed the following contracts:—

Herbert Morris Limited, Loughborough: one 6-ton mobile crane for Northwich repair yard, on the Weaver Navigation

J. J. Johnston & Co. Ltd., London, W.12: one 1-ton Rapier shop truck crane for Brentford warehouse, on the Grand Union Canal.

British Railways, North Eastern Region, have placed the following contracts:—

A. Robinson (Contractors), Limited, Middlesbrough: foundations to sand gantries, Thornaby Motive Power Depot

Charles R. Price, Doncaster: reconstruction of platform roofs at east end, Middlesbrough Station

Dow-Mac (Products), Limited, Stamford: supply and delivery of prestressed concrete bridge beams

Remington Rand, Limited, Newcastle: Remington Rand equipment for recording loose lifting tackle, Darlington North Road Locomotive Works

Raines (H. & V.), Limited, Wakefield: heating and hot and cold water installations, Sunderland Diesel Depot.

British Railways, Western Region, have placed the following contracts:—

Turriff Construction Corporation, Limited, Warwick: conversion of the engine shed, construction of an amenities block, inspection pits, drainage, and ancillary works in connection with the provision of maintenance facilities for diesel railcars at Cardiff Cathay

Lee, Beesley & Co. Ltd., Coventry: supply, installation, testing, connecting, and setting to work of electric lighting facilities at Tyseley Motive Power Depot

Firth, Blakeley, Sons & Co. Ltd., Vulcan Iron Works, Church Fenton, Yorkshire: dismantling holder and supplying and erecting a new bell in the existing gasholder in the oxygen plant, Locomotive Works, Swindon

George E. Taylor & Co. (London), Ltd., London, S.E.1: supply, installation, testing, connecting and setting to work of electric lighting facilities, at Mill Street Goods Yard, Newport, Mon.

Bell & Webster (Contracts) Limited, Hoddesdon, Herts: supply and erection of a framed building as storage accommodation at St. Clears, Carms.

Nott, Brodie & Co. Ltd., Bristol 1: construction of a new signalbox at Bristol Marsh Junction

Kyle, Stewart (Contractors), Limited, London, N.W.6: construction of diesel maintenance and fuelling facilities and ancillary works at Bristol Marsh Junction

Industrial Building & Maintenance, Limited, Reading, Berks: repairs and re-roofing work at the wagon and diesel shops, Worcester Shrub Hill

Staverton Builders, Limited, Totnes, Devon: provision of improved staff amenities at the motive power depot at Newton Abbot

Thomas Smith & Sons (Rodley) Ltd., Rodley, Leeds: supply and erection at Swindon of three 5-ton diesel-electric travelling cranes for the Chief Civil Engineering Department

R. G. Horton (Engineers), Limited, Brierley Hill, Staffs: construction of an examination pit at Tyseley Motive Power Depot

Bennett Bros. (Contractors), Limited, Swansea: provision of an amenity building at the running and maintenance depot at Swansea East Dock

Ransomes & Rapier, Limited, Ipswich, Suffolk: supply of three 13-ft. dia. wagon turntables; two for Bromsgrove and one for Sharpness

Avonmouth Plant & Construction Co. Ltd., Avonmouth, Bristol: construction of a fuel storage depot, examination pit,

amenities block, shunters' cabin, and drainage in connection with the fuelling facilities for diesel railcars at Cheltenham Malvern Road

The Demolition and Construction Co. Ltd., Croydon, Surrey: construction of diesel fuelling facilities, inspection pits, and ancillary works at motive power depot, Southall

The Demolition & Construction Co. Ltd., London, S.W.1: provision of an examination pit, drainage, fuel storage depot, amenities block, and approach road at Reading West

Staverton Builders, Limited, Totnes, Devon: construction of an examination pit, drainage, new sidings, and an amenities block in connection with the fuelling facilities for diesel railcars at Swansea High Street.

British Railways, Scottish Region, have placed the following contract.

James Laidlaw & Sons Ltd., Rutherglen: alterations and renovations to left luggage office and stationmaster's office, Glasgow Central Station.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call for tenders as follow:—

From Pakistan:

55 broad gauge (5 ft. 6 in.) bogie oil tank wagons in dismantled condition for the North Western Railway.

The issuing authority is the Government of Pakistan, Ministry of Communications (Railway Division). The tender No. is PRS-58/WAG/2/TDR. Tenders addressed to the Director General (Railways), Railway Division, Ministry of Communications, Government of Pakistan, Karachi, must be enclosed in sealed covers superscribed "Tender for B.G. Bogie Oil Tank Wagons." The closing date is April 10, 1958. Tender documents can be obtained from the office of the Director General (Railways), Railway Division, Ministry of Communications, Kings Way, Karachi, on payment of Rs. 100 for each set. This amount will not be refunded under any circumstances. Successful tenderer will be required to furnish a security deposit in cash or a bank guarantee not exceeding 5 per cent of the value of the contract as a performance bond. Local representation is essential. The Board of Trade reference is ESB/6791/58.

Further details regarding the above tender, together with photo-copies of tender documents, can be obtained from the Branch (Lacon House, Theobalds Road, W.C.1).

The Director General, India Store Department, Government Building, Bromyard Avenue, Acton, London, W.3, invites tenders for the supply of 66 R.H. and L.H. main bar frames with frame clips. See Official Notices on page 352.

ROAD CASUALTIES IN JANUARY.—The Ministry of Transport states that 470 people died in January as the result of accidents on the roads of Great Britain; the seriously injured numbered 4,600 and the slightly injured 14,671. The total of 19,741 is 3,608 more than in January of last year, when petrol rationing was in force, but about the same as in January, 1956. It is estimated that traffic on the main roads was 39 per cent heavier than in January, 1957.

Staff and Labour Matters

Railwaymen's Wage Claims

Railway Staff National Tribunal hears cases of three railway unions; reply by Mr. Valentine for B.T.C.

The claims of the three railway trade unions, the N.U.R., A.S.L.E.F., and T.S.S.A., for improved rates of pay for railway salaried and conciliation staff were heard this week by the Railway Staff National Tribunal under the chairmanship of Sir John Forster, Q.C.,; the other two members of the Tribunal were Mr. A. J. Espley and Mr. E. Hall.

N.U.R. Case

Presenting the case on behalf of the N.U.R., Mr. S. F. Green, the newly elected General Secretary, summed up the main points of his Union's case as follows:—

1. Railway wages are below the level of other nationalised industries and public undertakings.

2. The declaration in the Report of the Court of Inquiry set up by the Minister of Labour in 1954 under the chairmanship of Sir oJhn (now Lord) Cameron to the effect that railwaymen should not be in a worse position than their colleagues in comparable industries has not been implemented, and it is time it was.

3. Railwaymen do not start wage spirals. Meanwhile, they are dropping further behind in relationship to other industries.

4. There has been an increase of 4 per cent in the cost of living since March 4, 1957, the date of the last wage increase which the B.T.C. has said should be the starting point for comparison.

5. It is no answer to the claim for the Commission to say that it has not the money. Like everyone else it has its financial difficulties, caused by unreasonable statutory controls and Government intervention which the Commission has not opposed as vigorously as it ought.

6. It has not been established that a wage increase for railwaymen would be inflationary. There are very sound reasons for suggesting that it would help not only the nation, but the Commission itself.

7. A keen, loyal, and contented staff is still the most valuable asset that the Commission can have in the successful fulfilment of the modernisation plan.

Besides restricting increased charges, Mr. Greene referred to the arbitrary disposal of the profitable road haulage section of the B.T.C. undertaking and to restrictions on capital investment.

A.S.L.E.F. Case

For the A.S.L.E.F., regarding its claim for a 10 per cent increase in the rates of pay of locomotive grades, Mr. A. Hallworth, General Secretary, stated the claim was based on three main considerations:—

1. The increasing rise in the cost of living fully justifies an increase in standard rates of pay.

2. Current rates are inadequate recompense for the skilled and responsible duties performed by the grades concerned, and do not maintain an appropriate level relative to present-day standards of remuneration in industry generally.

3. The increase sought is necessary for the retention of existing staff and the future recruitment of the right type of personnel in order to meet the intensified developments under the modernisation programme and so maintain the efficiency, economy, and safety record of the railways.

Mr. Hallworth contended that the economic and financial policies of the Government had substantially contributed to the steep rise in the real cost of living of A.S.L.E.F. members. Reference was made to the adverse effects of the credit squeeze and the substantial increase in rents which locomotivemen were called upon to pay as a result of the 1957 Rent Act.

T.S.S.A. Case

The case for the T.S.S.A. was presented by the General Secretary, Mr. W. J. P. Webber, and can be summarised as follows:—

1. The rise in the index of retail prices since October, 1956, which was the basis of the award of the Railway Staff National Tribunal (Decision 19) which gave an increase of 3 per cent in the rates of pay of locomotive grades, justifies a further improvement in railway salaries.

2. Railway salaries are below those for other nationalised industries and public services.

3. It is necessary to improve railway salaries to attract and retain the right type of recruit.

4. In view of the contribution made by salaried staff to the increasing efficiency of the railway service, the real value of salaries should at least be maintained.

The Association, Mr. Webber added, was not asking that railway salaries be brought up to the level of those paid in other nationalised industries, but the fact that they were below was an added reason why the purchasing power of railway salaries should be maintained, which was the basis of the claim, leaving the T.S.S.A. to go forward for a real improvement in salaries at the appropriate time.

Reply for B.T.C.

The reply on behalf of the B.T.C. to these arguments advanced by the trade union advocates in support of the claims was given by Mr. A. B. B. Valentine, Member of the Commission. At the time we went to press he had not concluded his statement.

Mr. Valentine stated that since the beginning of 1955, railwaymen had been doing not at all badly, in fact pretty well, in the matter of salaries and wages. Whilst wage rates lagged behind retail prices until the end of 1954, the position began to change in 1955, and in 1956 and 1957 the wage rate index was above the prices index almost throughout the year, and the amount by which the wage rates gained on retail prices was much greater in 1957 than 1956.

The settlement of January, 1955, first put the increase of railway salaries and wages above the increase in cost of living. The 1956 settlement then gave 7 per cent against a cost of living rise of 5·8 per cent, and the 1957 settlement gave 5 per cent improvement in rates of pay against a cost of living rise of 3·9 per cent.

There had also been many improvements in conditions of service or in enhanced payments at considerable cost to the Commission and of corresponding value to the staff. Evidence was given to show that taking the last three years as a whole railway wage rates had been favourably

treated both in relation to the cost of living and to other industries and it was in the view of the Commission no longer true to contend that railwaymen were relatively underpaid.

Mr. Valentine said that the Commission desired to see higher productivity rewarded and was actively encouraging the introduction of incentive schemes wherever they could be worked out on a sound basis. Higher rewards for increased productivity could not, however, be entirely detached from the profitability or prosperity of the business. Moreover, any general increase in standard rates of pay, over and above the adequate and reasonable level at which they stood today, must wait for the more prosperous times that lay ahead when modernisation was further advanced.

As to the staff position, Mr. Valentine stated that the railways were no more short of staff than employers in other industries. They were much less short of staff than was the case two years ago and in general were able to recruit all the staff needed. It could not be accepted that any general increase in rates of pay was required on the grounds of staff shortages.

On the question of the cost of living which it was stated had risen by 3·2 per cent as measured by the index of retail prices since the last settlement in March, 1957, he pointed out that the Commission had never accepted as a principle that salaries and wages could or should be increased at any time to keep pace with increases in the cost of living; indeed it had often stressed the dangers of too frequent changes in its wages bill and consequently in its charges.

London Busmen's Pay Claim

The Industrial Court on March 13 issued its award on the claim of the London Transport busmen for an all-round increase of 25s. a week.

The award was that drivers and conductors of buses and trolleybuses in Central London should have an increase of 8s. 6d. a week, but that busmen employed on London Transport country services and the maintenance men in the garages should not have an increase.

If accepted, this would mean that some 34,000 of the 47,600 bus workers employed by London Transport would receive an increase costing about £1,000,000 a year. The effect of the award is to restore part of the advantage which Central London drivers and conductors enjoyed before the last war.

Talks between the L.T.E. and union leaders broke down earlier this week. The L.T.E. refused either to increase the 8s. 6d. recommended by the Industrial Court or to extend it to the 14,000 staff excluded from the award, although it offered to apply the award as it stood. The busmen are to hold a delegate meeting, probably early next week, to consider their next move.

SAUNDERS VALVE CO. LTD., AT BRUSSELS INTERNATIONAL EXHIBITION, 1958.—A combined Saunders valve and Safran pump exhibit will be shown in the Engineering Centre Group stand of the British Industries Pavilion at the Brussels International Exhibition, to be opened next month. This display provides the opportunity to exhibit seven types of valve in the space available. In addition to the basic handwheel-operated model, a lever-operated, Quick Act valve and two forms of pressure operation will be represented. A Safran Unishaft self-contained centrifugal pump will also be seen.

Notes and News

Half-through Type Bridges with Prefabricated Steel Floors. — The words "centre bearings" in the caption on page 320 of our March 14 issue should have read "centres of bearings."

Railway Benevolent Institution.—At a meeting on March 17, the board of the Railway Benevolent Institution granted annuities to 11 widows and seven members involving an additional liability of £385 a year; 75 gratuities also were granted amounting to £730 to meet cases of immediate necessity. Grants made from the Casualty Fund during the month of February amounted to £1,176.

Enfield Cables at the A.S.E.E. Exhibition —Stand No. H.13.—Enfield Cables Limited will again be exhibiting at the A.S.E.E. Exhibition, to be held at Earls Court, London, on March 25-29. The stand will be larger than last year. Among the exhibits will be compression, flat oil-filled pressure, and oil-filled supertension cables, joint boxes, armoured P.V.C. cables and glands, L.T. paper cables, and housewiring.

Improved Ventilation for Interfrigo Meat Wagons.—The first 70 standard-gauge four-wheel Interfrigo meat wagons to be fitted with electrical ventilation are now being placed in traffic on British Railways. These are for the throughout conveyance of carcase meat from Britain to the Continent via the Harwich-Zeebrugge and Dover-Dunkirk train ferries. All the wagons are to be fitted with electric ventilation by September. The vehicles have a capacity of 1,095 cu. ft. Interior dimensions are 25 ft. 2½ in. long by 7 ft. 2¼ in. wide. The length over buffers is 35 ft. and the tare weight is 17½ tons. The use of this electric system provides for greatly improved ventilation, particularly at low speeds; allows perishable foodstuffs to be refrigerated before despatch; and by the elimination of the overhead ducts used in air-operated equipment, gives headroom for the carriage of larger quarters of meat. The equipment consists of four ventilation fans, each driven by a single-phase condenser motor, built into screens, two at each end of the vehicle. The motors obtain electric current from a belt-driven permanent-magnet alternator with bi-phase windings, of which each phase supplies two motors. An on off lever control for the ventilation system is fitted at each side of the wagon. Refrigeration of the contents before despatch is carried out after icing and loading the wagon, by connecting the fan motors to the mains supply through a special plug-adaptor.

Fircleve Cold Rolled Strip and Flattened Wire.—The trade mark Fircleve has been accepted by the Registrar of Trade Marks as applicable to the range of cold rolled steel strip and flattened wire, and cold rolled hardened and tempered steel strip and flattened wire produced and marketed by Firth Cleveland Steel Strip Limited.

Two Prototype Coaches in Eastern Region. —The two prototype saloon coaches built by the Birmingham Carriage & Wagon Co. Ltd., for British Railways have been placed in service in the Eastern Region. This week they will run between Liverpool Street and Yarmouth. Next week the same vehicles will operate between Liverpool Street and Hunstanton. The coaches, one first class and one second class open plan vehicles, were described in our issue of July 12, 1957; they were among the vehicles at the Modern Travel Exhibition held at Battersea last June.

London Transport Passenger Vehicles to have Flashing Direction Indicators.—The London Transport Executive is to fit flashing direction indicators to all its 7,700 buses and coaches. The indicators will have moulded rubber bodies; they will also be hinged to protect them from damage and enable them to be folded back against the bus body when the vehicle passes through washing plant. The indictator housing is some 6 in. wide by 4¾ in. high, tapered from top to bottom to give a slight slope down to normal eye-level. It carries internally a longitudin-

Interior view of Interfrigo wagon built by La Brugeoise & Nivelles S.A., showing ice bunker doors opened

ally positioned blanking plate, the purpose of which is to prevent the transmission of sunlight through the unit. Front and rear plastic lenses are located in recesses in the housings. At the rear of the vehicle the repeating amber signal will be separate arrows, one on each side of the rear panel. The flashing indicators are covered by patents.

Fireman Killed by Pricker.—The fireman of the engine hauling a Paddington to Cardiff express was killed recently when the pricker he was holding struck an overline bridge and is thought to have been driven against him.

Glasgow-Eastbourne "Car Carrier Train."—A "car carrier" train service will operate on Sundays, Tuesdays, and Thursdays from May 4 until September 27 between Glasgow St. Enoch and Eastbourne. Return services will be on Mondays, Wednesdays, and Saturdays. The choice of Eastbourne wil enable motorists to go to the Continent or the South of England without driving through London.

Suspected Carbon Monoxide Poisoning in Train.—No explanation is yet possible of the illness which last week affected a party of schoolgirls travelling between Leicester and Nottingham, in the London Midland Region. Carbon monoxide poisoning has been suspected, but nothing was found in the heating, ventilation, or electrical system in the coach concerned which could have caused this.

B.T.C. Harbours Charges Scheme.—The hearing began on Monday before the Transport Tribunal of the B.T.C. Harbours Charges Scheme. Approval is sought to raise the maximum charges for ship and passenger dues at the major ports owned by the B.T.C. by 25 per cent of the charges operating in September last year. There are 11 objectors to the scheme. Mr. Maurice Lyell, Q.C., for the Commission, said that no attempt to reconsider on any logical basis the charges at these ports had been made for over 40 years.

Enfield Cables Agreement on Marketing in Canada.—Enfield Cables Limited announces an agreement with the Federal Wire & Cable Division, H. K. Porter Co. (Canada) Ltd., whereby that organisation will market Enfield products in Canada. The agreement also provides for the sharing of technical knowledge and experience should Federal Wire & Cables decide to embark on the manufacture of power cables in the future. The Enfield Resident Engineer in Canada, Mr. J. Morgan-Blades, will remain in his present position and act as technical adviser on power cable matters.

Investment in British Railways.—In a letter in *The Financial Times* of March 8, Mr. Douglas W. Franklin stated in a complaint about British Railways services that "nationalised industries . . . wait until demand has existed for years . . . before they think of budgeting to provide capital equipment for the necessary services." In a reply published in the March 14 issue, Mr. J. H. Brebner, Public Relations Adviser to the British Transport Commission, pointed out that virtually no investment in the improvement of passenger traffic facilities and equipment of the railways was possible during the war years, while for a number of years afterwards it was very severely restricted; and it was not until 1955 that it was possible to launch a comprehensive plan for the modernisation of British Railways. It was not, therefore, a question of management having failed to budget, but of investment not being available.

Electric Lighting at Market Harborough.—Electric lighting is to replace gas at Market Harborough, London Midland Region, passenger station, goods yard, and sidings. Conversion of the passenger station lighting will be completed by June, and that in the yard and sidings will follow. Cast-iron gas light columns on the open platforms will be replaced by concrete standards. In the sidings lights will be on 30-ft. timber columns.

John Bull Rubber Co. Ltd.—The directors of John Bull Rubber Co. Ltd. announce that acceptances of the offer made by the Dunlop Rubber Co. Ltd. to acquire the whole of the £555,558 issued ordinary stock of John Bull have been received from holders of over 90 per cent of that stock. The offer is now unconditional. The period for acceptances, however, has been extended to March 31 in order to allow the holders of the remaining stock who have not so far accepted to do so.

Silicone Insulating Compound Distributor for Scotland.—Midland Silicones Limited has arranged for the distribution throughout Scotland of Silicone Electrical Insulating Compound MS4 to be made through R. D. Taylor & Co. Ltd., 9, Lynedock Street, Glasgow, C.2. The product is a smooth silicone grease with the consistency of petroleum jelly which it retains at temperatures from −50° C. to 200° C. It has good dielectric properties and a high order of water-repellency, and in addition preserves, releases and lubricates rubber, plastics and other surfaces.

Eastern Region Excursion Train Plans.—The "London (Liverpool Street) Holiday Expresses," which the Eastern Region of British Railways introduced last year will again run this summer. The five-day excursions are specially designed for families who prefer having day outings to different places rather than spending their whole holiday at one resort. These trains will run from Liverpool Street on the weeks commencing July 21 and 28, and August 11 and 18. The inclusive fares of 80s. for adults and 40s. for children cover seat reservations; families or parties wishing to travel together are assured of the same seats throughout the week. For the first and third week, there will be trips to Clacton, Lowestoft, Kings Lynn, Felixstowe, and Wroxham. The itinerary for the second and fourth weeks will be Yarmouth, Walton-on-the-Naze, Kings Lynn, Felixstowe, and Wroxham.

Floating Containers on British Waterways.—British Waterways are demonstrating an experimental floating container which has been evolved for the speedy movement of freight traffic over 100 miles of narrow waterways in the Midlands. This container, which has been developed from the compartment boat system of container "trains" which has proved successful on the wide waterways in the West Riding of Yorkshire, has been designed to carry loads which cannot be handled economically by the 25-ton narrow boat. It can be towed by a tug either singly or with others as part of a miniature compartment boat "water train," and can be lifted from the water by crane or slipway direct to loading or unloading points, or to a trailer or other vehicle. Five prototype containers—three 7 ft. long, one 10 ft., and one 17 ft., with capacities of 3, 5 and 8 tons respectively, and all of 7 ft. beam to allow passage through the locks of narrow waterways—have been built. They are of plywood construction, but it is envisaged that production containers would be constructed of either glass fibre or aluminium, with bracing and ribbing moulded into the craft.

"3M" Company Electrical Tapes on Show.—The Minnesota Mining & Manufacturing Co. Ltd. will show the complete range of 3M Scotch Boy electrical tapes at the Factory Equipment Exhibition to be held at Earls Court, London, S.W., on April 14-18, a wide variety of treated film, cloth and paper backings. Uses for these tapes include lead holding in wound components, interwinding insulation and outer-wrapping of transformers and coils. In addition a pipe wrapping tape, designed for the protection of pipes or cables from chemical and electrolytic action whether above or below ground will also be displayed.

Formica at Brussels International Exhibition.—One of the displays to be exhibited at the Formica Limited stand at the forthcoming Brussels International Exhibition, shows some examples of the use of the company's decorative laminates in transport. It includes cutaway models of the ends of two railway coaches. These are shown as if coupled together. One model is of a compartment passenger coach showing seating and a toilet; the other is of a restaurant car with a set of tables and seats. Models of a long-distance motorcoach and a ship's cabin and corridor are also to be featured. The Exhibition will be open from April 17 to October 19.

Fuller Electric Limited at the Electrical Engineers' Exhibition.—Fuller Electric Limited of Walthamstow, of the Hawker Siddeley Group, will be exhibiting a representative range of on-load tap-changing equipment at the Electrical Engineers' Exhibition to be held at Earls Court, London, from March 25-29. Other items on show will include a Fuller electric variable speed a.c. commutator motor of 5 h.p. with 6 : 1 speed range to demonstrate the shunt characteristic and infinite speed variation obtainable with these motors. Preset and alternatively push button control will be shown as typical of the several control systems available. A cut-away model of a surge diverter with the spark gaps, grading resistors, non-linear resistors and other parts visible will also be seen.

Westinghouse Brake & Signal Co. Ltd. at the Mechanical Handling Exhibition.—The Westinghouse Brake & Signal Co. Ltd. will again be exhibiting at the Mechanical Handling Exhibition at Earls Court, London, on May 7-17. A group of panels will show a wide range of pneumatic control equipment. On another panel will be shown a new type of pneumatic coupling, the Westinghouse Simplifix. The Rectifier Division will be exhibiting special chargers, particularly for battery-operated materials handling equipment, with the normal range of chargers. Included in this display will be large power transformer/rectifier equipments used extensively for all industrial d.c. power supplies, also oil-immersed and water-cooled apparatus of various sizes.

Forthcoming Meetings

March 22 (*Sat.*).—Permanent Way Institution, Manchester & Liverpool Section, at the College of Technology, Sackville Street, Manchester, at 2.30 p.m. Paper on "Effects on permanent way to be expected from general introduction of diesels and electrification," by Mr. J. C. Loach.

March 25 (*Tue.*).—Railway Correspondence & Travel Society, East Midlands Branch, at the N.C.S. Guild Room, Toll Street, Nottingham, at 7.30 p.m. Paper on "Half-a-century of Midland performance," by Mr. J. F. Clay.

March 25 (*Tue.*).—Railway Correspondence & Travel Society, West Midlands Branch, at 64, Holyhead Road, Coventry, at 7.30 p.m. Paper by Mr. R. Bugler on "The development of 25 kV".

March 27 (*Thu.*)—British Railways (Western Region) London Lecture & Debating Society, at Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, W.2, at 5.45 p.m. Young men's discussion: "The means by which British Railways can be made to pay their way," preceded by the annual general meeting.

March 27 (*Thu.*).—Institute of Transport, Bournemouth Poole Group, at the Town Hall, Bournemouth, at 6 p.m. Paper on "Heavy goods haulage and indivisible loads," by Mr. F. E. Bourdillon.

March 28 (*Fri.*)—Institution of Railway Signal Engineers, Bristol Section, at Westinghouse Brake & Signal Company's works, Chippenham, at 5.45 p.m. Paper on "Intermediate block section signalling," by Mr. H. Du Tabor.

March 28 (*Fri.*).—Institution of Locomotive Engineers. Visit to the works of Westinghouse Brake & Signalling Co. Ltd., Chippenham. Members leave Paddington Station by 11.5 a.m. train.

March 28 (*Fri.*).—Institution of Mechanical Engineers, at 1, Birdcage Walk, Westminster, S.W.1, at 6 p.m. Internal Combustion Engine Group: Discussion: "The ultimate engine: stationary, rail traction and marine.

March 29 (*Sat.*).—Permanent Way Institution, East Anglia Section, at Ipswich, at 2.15 p.m. Paper on "Ordnance surveys," illustrated by lantern slides, by Major P. C. Sherwood.

March 31 (*Mon.*).—Historical Model Railway Society, at the Railway Tavern, Liverpool Street, London, E.C.2, at 7 p.m. Paper on "The Tralee & Dingle Light Railway," by Mr. P. B. Whitehouse.

March 31 (*Mon.*).—Society of Engineers, in the Apartments of the Geological Society, Burlington House, London, W.1, at 5.30 p.m. Paper on "Soil in British railway civil engineering," by Mr. A. H. Toms.

April 1 (*Tue.*).—Permanent Way Institution, Leeds & Bradford Section, in the British Railways Social & Recreation Club, Ellis Court, Leeds City Station, at 7 p.m. Paper on "Pre-electrification work on Stratford District," by Mr. P. B. Davis, British Railways, Eastern Region.

April 1 (*Tue.*).—Railway Correspondence & Travel Society, Sheffield Branch, at Livesey Clegg House, 44, Union Street, Sheffield, at 7.30 p.m. Paper on "Recent footplate experiences on the branches of the Irish Great Northern Railway," by Mr. J. C. W. Halliday.

Railway Stock Market

Sentiment in stock markets was dominated by the uncertainty prevailing about the industrial outlook in the U.S.A., and has so far been unresponsive to the growing hopes that the Budget on April 15 may bring minor tax concessions. In the quiet conditions prevailing, the only group of railway securities to receive attention has been shares of locomotive builders and engineers, some of which attracted buyers and moved moderately higher. This is because the take-over offer for Hurst Nelson made by Charles Roberts has tended to draw attention to the fact that shares in this section are undervalued in relation to their assets value; and that, looking ahead, as the railway modernisation programme develops, there should be scope for good improvement in earnings.

Compared with a week ago, North British Locomotive have risen from 10s. 3d. to 11s. 7½d. Hurst Nelson strengthened from 34s. 9d. to 35s., while Charles Roberts 5s. shares were firm at 8s. 4½d. and Beyer Peacock 5s. shares improved from 7s. 1½d. to 7s. 4½d. Sentiment has been helped by the belief that as time proceeds, the policy of diversifying the company's interests should benefit earning power. Gloucester Wagon 10s. shares have been well maintained at 13s. 6d., Wagon Repairs 5s. shares were 11s. 1½d., and in other directions, Birmingham Wagon at 16s. 4½d. were within 3d. of the level a week ago. G. D. Peters were again quoted at 27s. 6d. and remained firmly held. On the other hand, Associated Electrical at 49s. 9d. lost some of the improvement which followed the results, but vague talk in the market of new issue possibilities were unconfirmed. General Electric shares have reacted from 31s. to 30s. and English Electric at 50s. also eased despite the speech by Sir George Nelson at the annual meeting which emphasised the group's progressive policy and its good order book. Crompton Parkinson 5s. shares held steady at 9s. There has been firmness in machine tool shares with Alfred Herbert at 61s. 6d. and Asquith 5s. shares 18s. 6d. Elsewhere, there was further buying of Ruston & Hornsby, which moved higher at 25s. 9d. British Oxygen were also favoured because of the good yield and changed hands around 33s. 3d.

British Timken at 46s. 9d. were virtually the same as a week ago, Pressed Steel 5s. shares firmed up to 13s. 10½d. and in other directions, T. W. Ward again attracted and strengthened afresh to 74s. Moreover, the 10s. shares of the Dowty Group kept their rise to 34s.

Foreign rails have been inactive, and most quotations were not tested. Canadian Pacifics attracted some attention, the annual report having emphasised the progressive policy followed by the company, and the shares, although not keeping best prices were slightly better on balance at $46\frac{1}{4}$.

United of Havana second income stock remained at 6, and Costa Rica ordinary stock eased to 17, but in other directions, Mexican Central "A" bearer debentures moved up from $66\frac{1}{2}$ to $68\frac{1}{2}$.

Antofagasta ordinary stock receded from $15\frac{1}{4}$ to 15 in the absence of demand, but the preference stock remained at 35. Brazil Railway bonds were 5 and San Paulo Railway 3s. units 2s. 1½d.

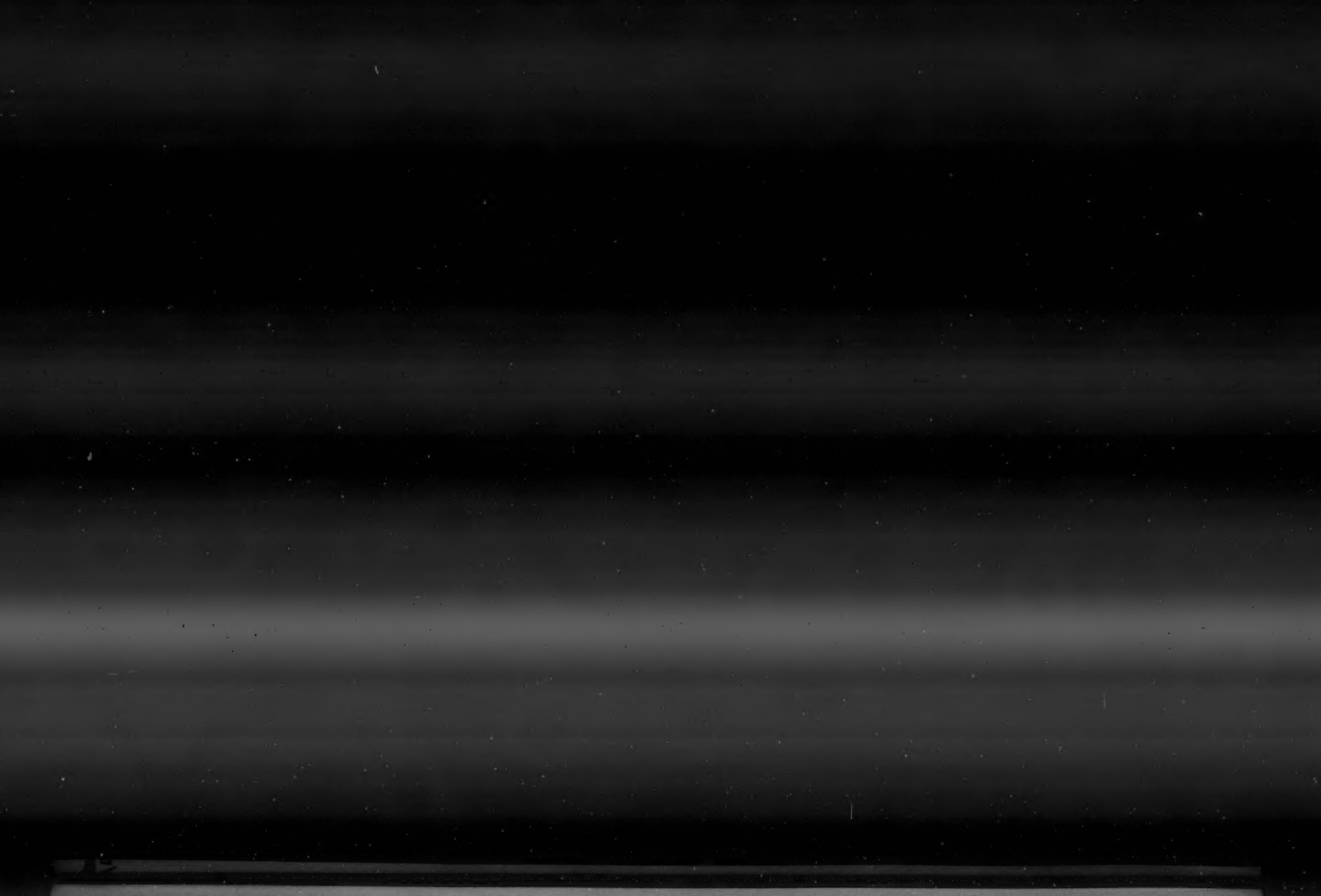
OFFICIAL NOTICES

TRAFFIC SUPERINTENDENT required for service at Mormugao, Portuguese India, to operate Harbour and 35 miles Railway under British General Manager. Salary scale £1,600-100-£2,000. Free furnished quarters. Three months leave after two years' service. Experience similar work essential, knowledge Portuguese an advantage.—Apply with copies testimonials to Secretary, West of India Portuguese Guaranteed Railway Co. Ltd., 332 Coastal Chambers, 172 Buckingham Palace Road, London, S.W.1.

LONDON TRANSPORT require SENIOR ASSISTANT to be responsible to the Signal Engineer for technical design work on telephone system and train describers used on London Transport. Applicants should have knowledge of automatic telephony and some knowledge of carrier wave working. Technical qualifications not less than Higher National Certificate (Electrical Engineering). Salary range £1,210 to £1,420. Medical examination; free travel. Applications within 7 days to Staff and Welfare Officer (F/EV674), London Transport, 55 Broadway, S.W.1.

TYNE IMPROVEMENT COMMISSION. The Tyne Improvement Commissioners invite applications from qualified persons for the positions of (*a*) ASSISTANT CHIEF ENGINEER and (*b*) SENIOR ASSISTANT ENGINEER under their Chief Engineer, Mr. R. B. Porter, M.I.C.E. Applicants for each position must be Chartered Civil Engineers with extensive experience in the design, construction and maintenance of dock and harbour works and installations. The commencing salary, which will have regard to the qualifications and experience of the successful candidate, will be for the position of Assistant Chief Engineer not less than £2,100 per annum; for the position of Senior Assistant Engineer not less than £1,650 per annum. Applicants must not be less than 32 years of age nor more than 45 years of age on the 1st January, 1958. The person appointed will be subject to the provisions of the Commissioners' Superannuation Scheme; will be required to reside in the district and to devote himself exclusively to the service of the Commissioners. Applications on a prescribed form, copies of which may be obtained from the undersigned, will be received up to the 10th April, 1958, and should be addressed to the Secretary endorsed to indicate the position for which application is made. Canvassing will be a disqualification. R. N. Eggleton, Secretary, Bewick Street, Newcastle-upon-Tyne, 1.

THE NIGERIAN RAILWAY CORPORATION invites applications for the following post:—TRAFFIC INSPECTOR. *Duties:* A Traffic Inspector will be required to supervise the Operating and Commercial aspects of a section of the Railway or a Depot Station. *Qualifications:* Candidates must have a thorough knowledge and experience of Railway Operating and Commercial work, single line electric train staff working, marshalling yard procedure, signalling, level crossing operation and rules and regulations applicable to these duties. They must be capable of examining Station Staff in block telegraph regulations. The candidates must also have sufficient experience and knowledge to check Staff Offices, Signal Cabins, Goods Sheds, Booking Offices, etc., and have a good working knowledge of accounts procedure to enable checking of station accounts. They must have a sound knowledge of Accident Procedure and be capable of quick and clear thinking in event of an emergency. *Salary:* In scale £1,000 × £50 per annum to £1,400 per annum (inclusive of Overseas Pay). Starting salary according to qualifications and experience. Appointments may be on pensionable terms or on contract with a gratuity payable on completion of contract at the rate of £16 13s. 4d. to £23 4s. 0d. for each completed month of service. *Tours:* 15 months in Nigeria followed by 15 weeks' leave on full pay. *Quarters:* Partly furnished quarters are provided at low rental. *Allowances:* £60 Outfit Allowance on first appointment and Children's Allowance of £75 a child up to two children under 18 years. Send postcard before 4th April, 1958, mentioning the post and this paper for further particulars and application form to:—The London Representative, Nigerian Railway Corporation, Nigeria House, 9 Northumberland Avenue, London, W.C.2.

THE Director General of India Store Department, Government Building, Bromyard Avenue, Acton, London, W.3, invites tenders for the supply of:—66 R.H. and L.H. MAIN BAR FRAMES with Frame CLIPS, completed machined on all faces. Forms of tender may be obtained from the above address on or after the 7th March, 1958, at a fee of 10s., which is not returnable. If payment is made by cheque, it should please be made payable to "High Commissioner for India." Tenders are to be delivered by 2 p.m. on Thursday, 17th April, 1958. Please quote Reference No. 125/57.DB/RLY.

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